2. Existing Conditions and Issues

This chapter summarizes the surrounding context and existing conditions at Sugarloaf Ridge State Park. Local planning influences and the roles of various agencies and local nonprofit organizations are characterized, as are the significant natural and cultural resources, existing land uses, recreational facilities, aesthetic resources, and approaches to interpretation at Sugarloaf Ridge State Park. The information provides the baseline data for the General Plan's goals and guidelines and serves as the setting for environmental review. A geographic information systems (GIS) data file of existing resources has been created in conjunction with this General Plan. Existing conditions maps included in this chapter were generated from the GIS database.

2.1 PLANNING INFLUENCES

2.1.1 SYSTEMWIDE PLANNING

Planning for the Department must consider wide-ranging issues that cross regional, local community, and park boundaries. Federal, state, county, and community agencies are responsible for providing oversight and review of various planning-related laws and policies, such as the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), Americans with Disabilities Act (ADA), as well as Regional Water Quality Control Board and Air Quality Management District regulations. Additionally, numerous Department resource management directives guide the planning process, including the following resources:

- California Department of Parks and Recreation Mission Statement
- California Department of Parks and Recreation Operations Manual
- California Department of Parks and Recreation Administrative Manual
- California Recreation Trails Plan
- California State Parks Access to Parks Guidelines
- California State Parks Systems Plan
- Employee Housing Policies
- System wide Park Operations and Concessions Policies
- California Heritage Task Force
- Vegetation Management Guidelines for Trails and Roads in the Units of the State Park System
- Public Resources Code

2.1.2 REGIONAL PLANNING INFLUENCES

The following local and regional plans and community organizations will have an influence on the management, operations, and visitor experiences at Sugarloaf Ridge State Park:

- Internal Draft Hood Mountain Regional Park Resource Management Plan
- Hood Mountain Regional Park Vegetation Management Plan
- Draft Sonoma County Outdoor Recreation Plan
- Bay Area Ridge Trail Plan
- Local and Regional Organizations Dedicated to Open Space Protection
- Local and Regional Organizations Dedicated to Watershed Protection
- Sonoma County General Plan

Internal Draft Hood Mountain Regional Park Resource Management Plan

SCRP is developing a resource management plan for Hood Mountain Regional Park. The resource management plan is intended to be a multipurpose user manual for Sonoma County park rangers, maintenance staff, planners, and visitors. The plan will establish short- and long-term goals, operating policies, and baseline information about park resources.

The draft goals for Hood Mountain Regional Park are classified as general goals, specific goals, dedication agreement goals, public use goals, resource protection goals, management goals, and operation goals. The overall goal of Hood Mountain Regional Park is to increase public use while protecting the natural resources. From a management perspective, the goal is to provide the user-friendliness of a small county park with the integrity of a well-managed wild land.

The plan identifies constraints to managing the park, including deed restrictions, SCRP rules and regulations, and the naturally occurring constraints of the locations. The plan also provides a description of existing conditions and recommended management actions for the following issue areas:

- Geophysiology
- Cultural Resources
- Hydrology
- Vegetation
- Fire
- Wildlife
- Public Use
- Infrastructure
- Trails
- Erosion
- Property
- Operations
- Emergency Procedures

Hood Mountain Regional Park Vegetation Management Plan

The *Hood Mountain Regional Park Vegetation Management Plan* was developed to identify a fire management strategy for the park. The principle management objectives for the plan are to minimize fire hazard, maintain and enhance rare and endangered species, maintain the vegetation structure, protect environmentally sensitive sites, and enhance opportunities for environmental education.

The fire danger at Hood Mountain is dictated by a combination of the risk of ignition, hazards associated with fuel conditions, and the weather. There is often a close correlation between the vegetation type and fire hazard. The *Vegetation Management Plan* determines the current fire hazard posed by each vegetation type and recommends management procedures to reduce the risk of fire. The plan recommends prescribed burns to reduce fuel loads and describes the expected impacts from the prescribed burns on invasive and rare and endangered species within Hood Mountain Regional Park. The only fires that have occurred in or near the park since 1930 were due to transmission line failures. Therefore, the plan encourages PG&E and relevant property owners to institute a program of vegetation management beneath these power lines (McBride, J.R. and S.J. Barnhart, Undated).

Sonoma County Draft Outdoor Recreation Plan

Sonoma County Regional Parks Department is preparing an environmental impact report for the *Draft Outdoor Recreation Plan*, a guide to parkland planning, acquisition, improvements, and management to meet the needs of Sonoma County through the year 2010. It also establishes a framework for agency coordination to meet parkland and recreation needs on a countywide basis. The *Draft Outdoor Recreation Plan* identifies existing and future parkland and recreation needs, recommends specific projects that could address these needs, and identifies policies and financing options to assist with implementation of the recommended projects.

Within Sonoma County there are 12 park management bodies that provide a variety of parklands for county residents as well as for visitors from outside the county: two state park districts, the U.S. Army Corps of Engineers Lake Sonoma Recreation Area, the county regional park system, five city parks and recreation departments, and three special park districts. Sonoma County Regional Parks Department provides five campgrounds in Sonoma County with 265 campsites. A 1994 survey found that there were 14 private campgrounds with 1,034 campsites in the Russian River between Jenner and Cloverdale (County of Sonoma 2000).

Sugarloaf Ridge State Park is located within the Santa Rosa Plain planning area designated in the *Draft Outdoor Recreation Plan*. The recommended projects identified in the *Draft Outdoor Recreation Plan* that apply to the Sugarloaf Ridge State Park general planning process are listed below. (The preceding numbers correspond to the numbers in the recommended project list for the Santa Rosa Plain area in the *Draft Outdoor Recreation Plan*.)

- #26. Hood Mountain Regional Park Expansion. This expansion would include approximately 450 acres of land between Hood Mountain Regional Park and Sugarloaf Ridge State Park. This expansion would allow for extensive trail system development and the possibility of multi-night trips between Hood Mountain and Sugarloaf Ridge parks. This need has been identified through the Outdoor Recreation Plan workshops and park acreage/population analysis.
- #29. Hood Mountain – Annadel Trail. The proposed trail would link Hood Mountain Regional Park to Annadel State Park.
- #32. Mayacamas Ridge Trail North. This proposed trail would begin at Bothe-Napa Valley State Park and terminate at the U.S. Bureau of Land Management (BLM) parcel adjacent to the northern boundary of Sugarloaf Ridge State Park.
- #34. Hood Mountain Trail North. The proposed trail would link Hood Mountain Regional Park to a 240-acre BLM holding to the east at the Sonoma/Napa county line. This project was recommended at the public workshops.
- #45. Sugarloaf Ridge State Park Expansion. The expansion of Sugarloaf Ridge State Park is intended to increase resource protection and management in the area. The area would be available for passive recreational use. (Figure 11 of the *Draft Outdoor Recreation Plan* refers to an area to the south of Sugarloaf Ridge State Park. The plan notes that this recommendation is assumed to be implemented by other federal, state, or local agencies. It is included in the *Draft Outdoor Recreation Plan* because it is intended to protect habitat and/or contribute to public recreation in Sonoma County.)

Bay Area Ridge Trail Plan

The Bay Area Ridge Trail is a 400-mile multiple-use trail connecting parks and preserved open spaces along the ridgelines surrounding the San Francisco Bay. More than half of the trail is complete, open to the public, and in use. Diverse public agencies and community groups are working together on the Bay Area Ridge Trail project (Bay Area Ridge Trail Council 2002).

The Pony Gate Trail, Stern Trail, and Bald Mountain Trail within Sugarloaf Ridge State Park are designated as part of the Bay Area Ridge Trail. These trail segments are isolated and do not connect with other segments of the Bay Area Ridge Trail. Other segments of the trail in Sonoma County include trails in Helen Putnam Regional Park, McNear Park, Spring Lake Regional Park, Petaluma Adobe State Historic Park, Jack London State Historic Park, and Annadel State Park.

Local and Regional Organizations Dedicated to Open Space Protection

Several agencies and nonprofit organizations are devoted to the acquisition and conservation of open space in the Mayacamas Ridge and Sonoma Valley surrounding Sugarloaf Ridge State Park.

The *Sonoma County Agricultural Protection and Open Space District (SCAPOSD) Acquisition Plan 2000* directs the land conservation efforts of SCAPOSD and assists in carrying out the 1990 voter-approved measures for preserving agricultural and open space lands in Sonoma County. *Acquisition Plan 2000* used GIS to provide a science-based analysis of agricultural, natural resource, greenbelt, and recreational lands. SCAPOSD relies on this analysis to set land acquisition priorities and evaluate properties.

Part of the SCAPOSD's implementation strategy to meet its goal of doubling the extent of SCAPOSD-protected lands from 27,000 to 54,000 acres within the next five years is to establish key conservation partnerships with public agencies and private organizations to complete significant land acquisitions.

Examples of favorable factors that would lead SCAPOSD to pursue a potential acquisition include the following:

- Adjacency to protected lands
- Ecological value (unique site, beneficial habitat, species diversity, protection of species, etc.)
- Strong landowner commitment to protecting conservation values
- High risk of loss without SCAPOSD participation

SCAPOSD, independent nonprofit organizations (LandPaths), and the Department have worked together in the past to protect important resources (for example, the Santa Rosa Creek Watershed Management Zone, formerly a portion of the McCormick Ranch). SCAPOSD was also the sole funder and lead agency in the acquisition of the Nunns[1] Canyon Management Zone (formerly a portion of the Beltane Ranch) and holds conservation easements, in perpetuity, on the properties. The Department is obligated under the terms of the easement to provide access to SCAPOSD for annual stewardship monitoring of the properties and to communicate, in advance, their strategies for maintenance and management. SCAPOSD continues to identify important undeveloped lands in the Mayacamas Ridge for acquisition in support of Sugarloaf Ridge State Park and nearby Hood Mountain Regional Park.

The mission of the *Sonoma Land Trust* is to provide permanent protection of Sonoma County land, including its natural beauty and biotic resources, and to offer stewardship, education, and guidance for the preservation and enhancement of agricultural, natural, scenic, and open space lands.

Land Partners Through Stewardship (LandPaths) is a nonprofit organization that assists landowners in defining and implementing practices that maximize resource conservation, ensuring protection for ecologically fragile areas while promoting managed public access. Landpaths also undertakes watershed restoration activities as well as promotes and

[1] The spelling of "Nunns Canyon" is consistent with US Geological Survey maps. There is however, common usage of the spelling "Nuns Canyon" as referenced by Thomas Brothers Maps and street signs

conducts on-site environmental education programs to involve the community in preserving the diverse natural communities of the region.

The *Land Trust of Napa County* works to protect the natural diversity, scenic open space, and agricultural vitality of Napa County by preserving lands with significant conservation values for present and future generations and by fostering an appreciation and understanding of the natural environment. The Napa County Land Trust holds conservation easements protecting approximately 3,000 acres directly east of Sugarloaf Ridge State Park.

Local and Regional Organizations Dedicated to Watershed Protection

Sugarloaf Ridge State Park is located in the Sonoma Creek and Santa Rosa Creek watersheds. The Sonoma Creek watershed includes both Bear Creek and Calabazas[2] Creek, which also flow through the park. The Department's Silverado District has been involved in many watershed restoration activities within Sugarloaf Ridge State Park. Several nonprofit organizations are also dedicated to restoring these watershed systems, particularly to reduce sediment loads so that anadromous fish as well as other wildlife and plants are sustained. Several watershed restoration plans and enhancement plans have been developed to guide specific actions to benefit the watershed. A list of some of the organizations involved in protecting the watersheds is provided below.

The *Sonoma Ecology Center* is a nonprofit organization dedicated to pursuing sustainable ecological health in the Sonoma Valley through research, restoration, education, and preservation (Sonoma Ecology Center 2002a). Sonoma Ecology Center has provided GIS data and expertise to the Department for management and long-term planning, including this general planning process.

The Sonoma Ecology Center has a number of programs to implement watershed restoration goals. The *Sonoma Valley Watershed Council* is a division of the Sonoma Ecology Center that encourages education and active stewardship of the watershed by the community. The *Sonoma Valley Watershed Station,* located on Sonoma Creek, is an education research center established in 1998 to further understanding of the natural systems of the Sonoma Valley.

The *Sonoma Valley Watershed Council Creek Restoration Program* was established by the Sonoma Ecology Center in 1994 through a creek restoration grant from the Urban Streams Restoration Program of the Department of Water Resources. The program's goal is to protect and enhance the Sonoma Creek watershed's riparian ecosystems with the following activities:

- Control invasive pest plants, including giant reed (*Arundo donax*) in the Sonoma Creek channel and its tributaries and waterways
- Reintroduce native plant species where needed for habitat and erosion control

[2] The spelling of "Calabazas" is consistent with USGS maps.

- Integrate other Sonoma Watershed Council programs, such as Adopt-A-Watershed and Sonoma Valley GIS
- Raise public awareness regarding stewardship of Sonoma Valley's stream resources

The mission of the *Southern Sonoma County Resource Conservation District (RCD)* is to improve resource management while supporting sustainable agriculture and urban communities. The RCD provides technical assistance, education, and funding sources for conservation projects. The RCD empowers landowners to improve water quality, prevent soil erosion, and improve natural habitat. RCDs are nonregulatory, community-based special districts established by Division 9 of the California Public Resources Code. RCDs also offer education and outreach through landowner workshops, watershed newsletters, and school education and service learning programs. Watershed-wide planning and local land stewardship are integral to RCD's management of current conservation issues (Southern Sonoma County RCD 2002).

Sonoma County General Plan

The broad purpose of the Sonoma County General Plan is to outline policies to guide decisions on future growth and development. Specific plans, area plans, zonings, subdivisions, public agency projects, and other land use decisions must be consistent with the General Plan. While the County's General Plan does not directly affect state-controlled properties such as Sugarloaf Ridge State Park, it does directly affect the surrounding land use and thereby the context of the park. The General Plan includes elements that guide various facets of growth and development within the county. The elements most applicable to the state park planning process include the Land Use, Open Space, Resource Conservation, and Circulation and Transit elements.

The Land Use element describes where different types of land uses may be established in the unincorporated areas of Sonoma County. The Open Space element designates portions of the county in several open space classifications. The limitations on types and intensities of permissible uses and special development and permit review requirements are expressed in the text for each open space classification. The Resource Conservation element provides policies for managed production and conservation of various resources, including soils, water, forests and timber, vegetation and wildlife, fisheries and harbors, geothermal, mineral and energy, atmospheric resources, and air quality. The Circulation and Transit element describes the plans for the county's future highway and transit systems. (County of Sonoma 1989).

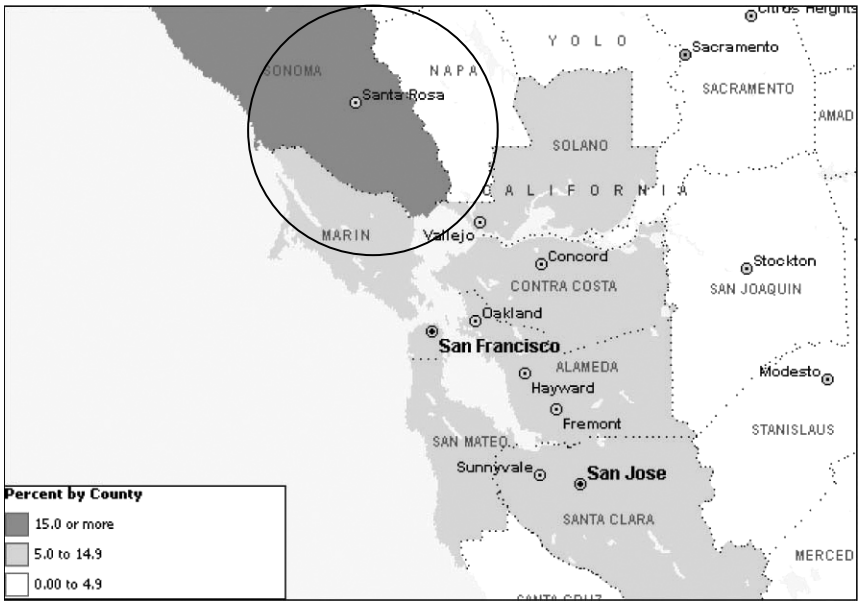
2.1.3 SURROUNDING CONTEXT

Population Trends and Projections

Recreation demand and use, over time, are affected by the changing demographic patterns of the areas served. A number of key factors will affect the future use patterns and facilities within Sugarloaf Ridge State Park.

42% of Day-Use Visitors to Sonoma County originate in the Bay Area.
The largest single county contribution to day use comes from within Sonoma County, accounting for at least 15% of the day-use visitation. Each of the greater Bay Area counties contributes from 5 to 14.9% of the total Sonoma County visitation (Figure 2-1). For Sugarloaf Ridge State Park, these statistics indicate that distance to population centers is an important factor affecting day use. The nearest population centers served by the park include the entire Sonoma Valley as well as Santa Rosa. Within easy traveling distance are the growing communities of Petaluma, Rohnert Park, Winsor, Napa, and Vallejo.

Figure 2-1: Source of Day-Trip Visitors to Sonoma County



Source: MCG, 1999

Overall population in the Bay Area is projected to increase by 20% by the year 2025. The Association of Bay Area Governments (ABAG) projects that growth in the region will accelerate, adding another 1.4 million residents by 2025, an increase of more than 20%. The growth in this area of Sonoma County is expected to be slightly slower than the Bay Area average, but nearby Napa County is projected to grow by 30% - one of the fastest growth rates in the nine-county region (Association of Bay Area Governments 2001). This regional growth is likely to contribute to increased visitation at Sugarloaf Ridge State Park.

The Hispanic population is increasing proportionally faster than other populations. The relatively large Hispanic populations located in the Sonoma Valley and the Bay Area, combined with changing ethnicity patterns in California, will directly affect the pool of potential users at Sugarloaf Ridge State Park. According to the 1990 U.S. Census, there were about 6 million Hispanic people out of the total statewide population of 29.8 million (20%). By the year 2000, this figure had increased to about 11 million out of 34 million people (32.4%). This 12% increase in 10 years suggests that the mix of user groups and the corresponding facility needs at the park may be changing. For example, there is a correlation between Hispanic people recreating in large (often family-based) groups and a

high demand for developed recreation sites, particularly those with picnic tables, barbeque grills, parking lots, etc. Group picnics also tend to be longer in duration than for some other ethnic groups, as many food items are prepared on site from scratch.

Affluence and education of residents and visitors suggests stronger-than-normal demand for wildland recreation. People with higher income and education levels tend to prefer undeveloped/wildland-type recreation. An evaluation of income and education levels of the park's user populations suggests a stronger-than-normal demand for wildland recreation.

Visitors to Sonoma County are generally well educated and affluent - 61% of visitors to Sonoma County are college graduates or have attended graduate school, and 58% make $75,000 per year or more (Menlo Consulting Group 1999). These visitors contribute to a high demand for undeveloped natural areas and wildland-type recreation. Sonoma Valley offers attractive, high-end destinations and many forms of lodging and entertainment to attract visitors. First-time visitors are generally drawn to the Sonoma Valley to visit a winery or spa, but repeat visitors explore more of the county (MCG 1999). More than two-thirds (68%) of visitors to Sonoma County are repeat travelers. According to a Sonoma County Tourism Program on-line visitor survey, after food and wine, the primary reasons for visiting include sightseeing (22%), nature/wildland (8%), and activity/adventure sports (6%). Sugarloaf offers these activities and is in a prime position to capture the interest of the repeat visitor to Sonoma County.

Strong latent demand for outdoor recreation in Sonoma County. Studies conducted from 1988 and 1996 by SCRP indicate that visitor use for all types of outdoor recreation has increased much faster than the increase in county population during the same period. Total visitor use at county-owned and operated outdoor recreation facilities increased 66%, while the county population increased 10.3%. Simultaneously, Sonoma County Regional Parks' recreation acreage increased 49%. This increase in available acreage combined with an increase in use suggests a stronger-than-normal latent demand for outdoor recreation facilities (County of Sonoma 2000).

Increasing age of the populace. The average age of county residents is increasing; the combined age groups of 45 to 65 and 65+ represented 31.3% of the total population in 1990, but are expected to constitute 42.2% of the total in 2010 (*ABAG Projections 2000*). (The 65+ category alone represents 12.6% of the county population, according to the U.S. Census 2000.) Based on this shift, facility improvements may be needed to meet the needs of an aging yet active population. For Sugarloaf Ridge State Park, this shift suggests the need for improved interpretation and classroom activities, such as those currently available at the observatory and the visitor center. Level or more easily accessible trails and camping opportunities for disabled visitors would also help to satisfy this changing demographic pattern.

Contributing Properties

Contributing properties are those in the vicinity of Sugarloaf Ridge State Park. Their open space and proximity to the park support the park-like character and wildlife resource values.

Sugarloaf Ridge State Park and Hood Mountain Regional Park represent 6,550 acres of protected wildland habitat in the Mayacamas Ridge. The protected land provides part of the wildlife corridor extending from Napa Valley over the ridge to Sonoma County. The Department, Sonoma County Regional Parks Department, SCAPOSD, and other land trust organizations have put forth the idea of protecting the wildlife corridor and establishing a trail connection between the three Sonoma Valley state parks, including Annadel State Park near Santa Rosa and Jack London State Historic Park near Glen Ellen. The trail system would add to the recreational resources in the area and provide a corridor connecting all three state parks.

Other contributing properties located near Sugarloaf Ridge State Park will have an influence on the future management of the park. Several properties are inholdings, located either within Sugarloaf Ridge State Park itself, or between the park and Hood Mountain Regional Park. The only access to the inholding properties is through one of the parks. The future use of the currently undeveloped or rurally developed inholdings will affect the character of the parks and their combined habitat value. Other surrounding properties will also have an influence due to their proximity to the parks, access requirements or barriers, location within the viewshed of the park, or their function as an important component of the wildlife corridor.

A description of nearby Hood Mountain Regional Park, other state parks in the area, and other significant contributing properties that will have an influence on the future management of Sugarloaf Ridge State Park is provided below.

Hood Mountain Regional Park

Hood Mountain Regional Park is a 1,450-acre holding established incrementally from 1968 to 1974 and administered by SCRP. The park is located approximately five miles from State Route 12 and is visually prominent at the headwaters of Santa Rosa Creek. It is accessed from the north via the winding ascent of Los Alamos Road. The two parks share parking and portable restroom facilities at the top of Los Alamos Road. From the south, Adobe Canyon Road leads to Sugarloaf Ridge State Park, where the Goodspeed Trail provides access to the southern portion of Hood Mountain.

Hood Mountain Regional Park ranges in elevation from approximately 900 feet to 2,730 feet at the top of Hood Mountain. The park is drained by Santa Rosa Creek and its tributaries (e.g., Azalea Creek) north of Hood Mountain and by various ephemeral drainages that feed into Sonoma Creek south of Hood Mountain. Hood Mountain Regional Park includes an excellent sample of the major vegetation types of eastern Sonoma County as well as a few unique types and species, including a large stand of dwarf cypress. Mixed evergreen forest is the dominant vegetation type at the park entrance on Los Alamos Road up to Azalea Campground (McBride, J.R. and S.J. Barnhart, Undated).

The Azalea Campground has been proposed to be reinstated as a backcountry equestrian campground with six small group campsites, accessible from Los Alamos Road.

Since 1986, the park has been open to the public on an intermittent basis, primarily on weekends when fire risk is low. This policy is based on the perceived high fire danger within the park, low visitor use, and lower funding priority within SCRP. Renewed interest in reopening Hood Mountain Regional Park to the public has been expressed during the public involvement process for the *Draft Outdoor Recreation Plan*. Hiking and limited horseback riding and mountain biking are the principle park activities.

Annadel State Park

Annadel State Park (Annadel) is located on the eastern edge of Santa Rosa, about 10 miles west of Sugarloaf Ridge State Park. Annadel offers miles of trails for hiking, mountain biking, and horseback riding. Like Sugarloaf Ridge State Park, Annadel offers a great variety of wildflowers from early spring until early summer. Fishing for black bass and bluegill is popular in Lake Ilsanjo (CDPR 2002b). Camping is not allowed in the park; the closest campsites are available at the county campground at Spring Lake and at Sugarloaf Ridge State Park.

Because of its proximity to Santa Rosa, Annadel is heavily used as a retreat from that city. The trails and facilities are often crowded, and the trails were eroded from heavy use. A direct connection between Annadel and Sugarloaf Ridge State Park via Hood Mountain was suggested in the *Draft Outdoor Recreation Plan* (County of Sonoma 2000). If this connection were made between the two parks use levels could be evened out

Jack London State Historic Park

Jack London State Historic Park is a memorial to writer Jack London, who made his home at the site from 1905 until his death in 1916. The historic park is located on London Ranch Road in Glen Ellen, about 20 minutes north of Sonoma and approximately 10 minutes southwest of the entrance to Sugarloaf Ridge State Park on the northeast flank of Sonoma Mountain.

The 800-acre park nearly doubled in size with an acquisition funded by SCAPOSD for an open space portion of the Sonoma Developmental Center, located immediately adjacent to the park. The historic part of the park contains the cottage residence where Jack London wrote and oversaw various agricultural enterprises within his 1,500-acre Beauty Ranch and a museum in "The House of Happy Walls" in a redwood grove. A three-quarter-mile walk takes visitors to a dam, lake, and bathhouse built by London. Other hikes lead up through fir and oak woodlands to the top of Sonoma Mountain, where there are views of the Valley of the Moon and Petaluma to the west. Another trail leads to Jack London's grave and to "Wolf House," London's dream house, which was destroyed by fire in 1913 (CDPR 2002c).

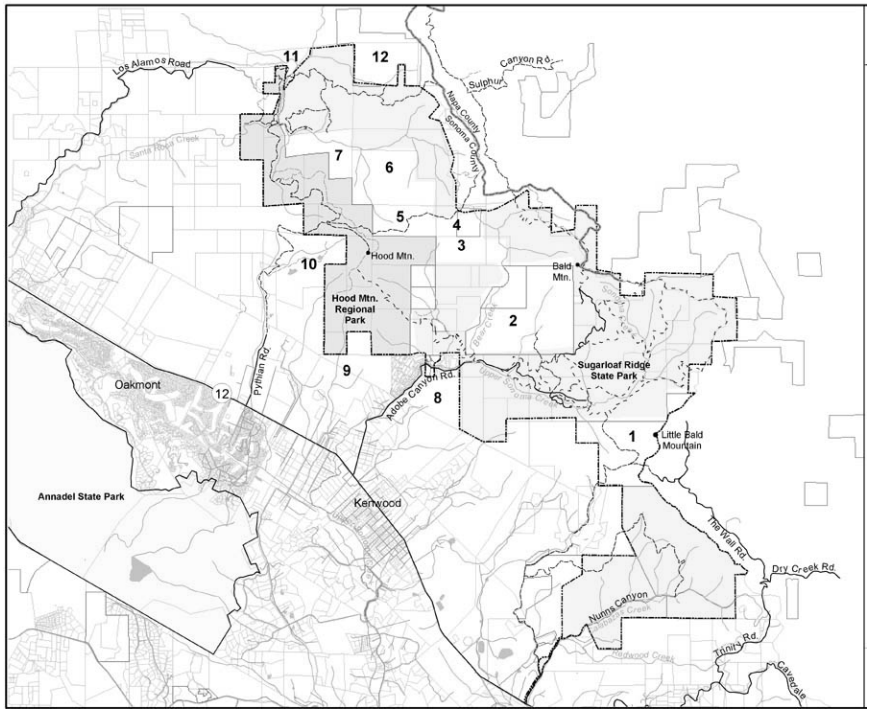
Visitors come to the park primarily for historical interest. Camping is not allowed in the park; the closest campsites are at Sugarloaf Ridge State Park. Bicycling and horseback riding

are permitted on some trails, and a summer horseback riding concession is available in the park.

Significant Adjacent Private Properties

Figure 2-2 identifies the location of significant contributing private properties described in this section. These properties are described for their value as they contribute to the goals of the park. Acquisition of these properties is not intended by their inclusion here. The Department policy is to consider acquisition from *willing* sellers only.

Figure 2-2: Contributing Properties



Parcel 1

Parcel 1 is located on the southern boundary of the Adobe Canyon Management Zone, separating it from the Nunns Canyon Management Zone. The property includes wildland, vineyards, and a residence. The owners have expressed a willingness to discuss a trail easement connecting the visitor-serving facilities in Adobe Canyon with Nunns Canyon. If developed, the trail could form a section of the Bay Area Ridge Trail.

Parcel 2

Parcel 2 is a 630-acre, privately owned inholding in the middle of Sugarloaf Ridge State Park, situated in the headwaters of Bear Creek between Red Mountain and Hood Mountain. The only active access to the property is a trail starting in Sugarloaf Ridge State Park, which connects with Adobe Canyon Road, just past the park's entrance station. There is also an inactive road alignment to the headwaters of Bear Creek that was built in the early 1900s. Four residences on the property, including a three-story house, are located in the center of the property off of the access road. A swimming pool, a barn used

as a large garage, and other ranching equipment and facilities are located on site. The ranch development is located on a relatively flat area near a seasonal creek that runs through the middle of the property.

Two other small inholdings are located within Sugarloaf Ridge State Park. Both are private residential properties near the western portion of the park. One property is approximately 10 acres and the other is 86 acres. The inholdings are accessed by Pierson Road, which intersects with Adobe Canyon Road approximately one-eighth of a mile from the entrance to the park.

Inholdings between Sugarloaf Ridge State Park and Hood Mountain Regional Park

Seven parcels are located between Sugarloaf Ridge State Park and Hood Mountain Regional Park:

- Parcel 3 – One parcel, recently available for sale directly adjacent to Sugarloaf Ridge State Park, to the south of the BLM land and near the narrow land connection between the Santa Rosa Creek Watershed Management Zone and the rest of the Park.
- Parcel 4 (BLM-owned) – One parcel was offered as excess property in the mid-1990s and could aid in creating a trail connection between the Santa Rosa Creek Watershed Management Zone and the rest of Sugarloaf Ridge State Park.
- Parcel 5 – The Pythian Road connection emergency access from Hood Mountain Regional Park to the Red Barn at the end of the High Ridge Trail in Sugarloaf Ridge State Park passes through this property.
- Parcel 6 – Recently subdivided into three lots, reportedly in anticipation of sale; some reported loss of sensitive habitat in Sargent Cypress stands due to recent excavations (Sonoma County Regional Parks Department 2002).
- Parcel 7 – Located to the south of the Hood Mountain Regional Park/Santa Rosa Creek Watershed Management Zone entrance (northernmost inholding), this property has a conservation easement held by Sonoma Land Trust.

Access to all properties is by Pythian Road, through Hood Mountain Regional Park. The BLM property is adjacent to the land connection between the Santa Rosa Creek Watershed Management Zone and the rest of Sugarloaf Ridge State Park and could aid, though not complete, a trail connection between the two areas. BLM offered it as a surplus property in the mid-1990s, but it was not acquired by the State of California or the County. All of the other inholdings are privately owned and do not provide public access connections between the two parks.

Parcel 8 Golden Bear Lodge

The site of the former Golden Bear Lodge is on Adobe Canyon Road near the intersection with Pierson Road, 200 feet below the Goodspeed Trailhead. The lodge burned down in spring 2003. Pierson Road leads to the western portion of Sugarloaf Ridge State Park,

including the former Harr Ranch residence. Because of its proximity to both the western and eastern portions of the park, the Department has acknowledged that the site could have been a good location for a visitor center for Sugarloaf Ridge State Park and possibly Hood Mountain Regional Park.

Negotiations in summer 2002 between the Golden Bear Lodge owners, SCAPOSD, and the Department to purchase the lodge (prior to burning) for use in Sugarloaf Ridge State Park were unsuccessful. The parcel is still for sale and is currently unoccupied.

Parcel 9

The developer of this property is in the process of donating a trail easement to SCRP between Annadel State Park and Sugarloaf Ridge State Park, via Hood Mountain Regional Park. This easement is intended to provide pedestrian access from State Route 12, near the intersection of Lawndale Road, to the southern edge of Hood Mountain Regional Park. The trail easement could connect with the Goodspeed Trail just south of Gunsight Rock.

Parcel 10

Parcel 10 is adjacent and to the west of Hood Mountain, between Hood Mountain Regional Park and State Route 12 along Pythian Road. SCAPOSD recently acquired the 300-acre parcel with the intention of transferring ownership to Sonoma County Regional Parks Department for inclusion in Hood Mountain Regional Park. The property is intended to provide a multi-use trailhead into Hood Mountain Regional Park from Pythian Road. Some access issues are still unresolved but Sonoma County Regional Parks is pursuing their resolution. This acquisition also enhances the possibility of a connection between Annadel State Park and Sugarloaf Ridge State Park.

Parcel 11

Parcel 11 includes 300 acres adjacent to the northern entrance to Hood Mountain Regional Park and the Santa Rosa Creek Watershed Management Zone. A small edge portion of the parcel forms a sharp triangle separating the northern Hood Mountain Regional Park/Santa Rosa Creek Watershed Management Zone entrance parking lot that could serve as a second access into this area.

Parcel 12

Parcel 12, formerly owned by BLM, is a 60-acre portion of a larger parcel to the north of the Santa Rosa Creek Watershed Management Zone. The owner recently acquired the property from BLM and is transferring ownership to the Department. At this time, it is not clear which portion of the larger BLM parcel is being transferred.

Properties on the Eastern Side of the Mayacamas Ridge in Napa County

Several ranches and other large properties on the eastern side of the ridge from Sugarloaf Ridge State Park have been preserved through conservation easements. Most of the conservation easements do not allow public access to the property, but they do preserve the land in perpetuity. These lands contribute to the protection of a biological corridor

from Napa Valley over the ridge to Sonoma County. The properties along Heath and Bear Creeks include old-growth madrone forests, large waterfalls, and large rock outcrops.

Recent Acquisitions

In 1996, SCAPOSD purchased the Santa Rosa Creek Watershed Management Zone (formerly a portion of the McCormick Ranch), and fee title was given to the Department. Despite its desire to protect the property, fiscal constraints prevented the Department from assuming management of the property at the time of purchase. LandPaths managed the property for the Department for a number of years. There are no buildings on the property, and access is available through Hood Mountain Regional Park.

Specific conditions that transfer with the SCAPOSD conservation easement on the property raise issues for long-term management.

- The property is protected under a "forever wild" easement, to be managed by SCAPOSD in perpetuity for its value as a landscape of diverse and integrated habitat types representative of plant communities once widespread in Sonoma County. Coordination of the Department's maintenance and management strategies in conjunction with SCAPOSD's stewardship responsibilities under the conservation easement will be an ongoing requirement of management.
- An easement along the eastern ridge of the property is visible from the preserved areas of the park below, as well as by visitors in their first view of the park at the crest of the ridge atop Los Alamos Road, just before the parking area. Protection of the watershed below the easement will be valuable for steelhead trout as well as baseline characterizations of the water quality further downstream.
- The narrow connection between the Santa Rosa Creek Watershed Management Zone and the rest of Sugarloaf Ridge State Park is not suitable for development of a trail link between the two areas, according to trail designers and surveyors who evaluated the property in 2000 and 2001. The topography is too steep, and the connection is too narrow to allow for an appropriate trail alignment.

Nunns Canyon Management Zone

The Nunns Canyon Management Zone has been privately owned and is located to the south of Sugarloaf Ridge State Park, separated by an intermediate property, also privately owned. SCAPOSD has an agreement with the owner of the property to acquire fee title, which would be transferred to the Department for management. The draft conservation easement, as it is currently written, would allow development of campgrounds, parking areas, restrooms, trails, access roads, interpretive kiosks, and residences for Department staff on the property (SCAPOSD 2002b). Although the formal acquisition of the property and transfer of land to the Department was still underway at the time this General Plan was written, an agreement has been reached among all parties. For this reason, the property is included in this General Plan as the Nunns Canyon Management Zone.

The property extends northeasterly from State Route 12 to the ridgeline separating Sonoma and Napa Counties. The property forms a narrow corridor along Nunns Canyon Road for about a mile then fans out as the land steepens. The land varies from the gently sloping valley floor to rolling hills, with some rocky hillsides along the northern boundary. Calabazas Creek forms the easterly boundary of the property for approximately 1.5 miles from State Route 12 and enters the park boundaries for approximately 1.75 miles to its source. There are several open meadows dotted with oaks, on one of which is a historical homestead site complete with mature apple trees. Areas along Calabazas Creek are heavily wooded with Douglas-fir and redwood, and most of the hillsides are heavily wooded and brushy. Nunns Canyon is considered part of the wildlife corridor extending to Jack London State Park.

An inactive quarry on Nunns Canyon Road near State Route 12 has been suggested by the Department as a potential location for a trailhead and parking lot for the southern entrance into Sugarloaf Ridge State Park. Existing debris on site would need to be cleaned up and drainage from the site corrected before public use of the site would be allowed.

Public access to the Nunns Canyon Management Zone would be through Nunns Canyon Road. Several other properties are accessed by Nunns Canyon Road, so any new park gates placed near the quarry would need to allow private access to the other properties. Nunns Canyon Road and Nelligan Road form a loop through the property. SCAPOSD is negotiating a road easement for fire access through the portions of Beltane Ranch that would be retained by the owner.

Future Land Acquisitions

The Department considers all land acquisitions from *willing* sellers that would further increase its stated priorities to increase access to recreational lands and important cultural resources, or that offer connections to wildlife habitat and other natural resources to help achieve resource management objectives (CDPR 2002a). Acquisitions are evaluated based on specific factors, including whether the land protects and preserves unique resources, reduces potential threats to property adjacent to Department property, and helps "round out" existing state park boundaries. Acquisition priorities by the Department are made on a statewide basis with recommendations from local state park superintendents (County of Sonoma 2000).

As described, SCAPOSD, the Sonoma Land Trust, and other land trust organizations in the region help the state acquire lands. In some cases, the Department uses this mechanism to receive fee title and/or conservation easements for public access to additional lands of statewide importance for potential integration into the State Parks system. The acquisition of a portion of the McCormick Ranch is one example of how the SCAPOSD, local land trusts, and the Department have worked together to preserve land. The acquisition of a portion of the Beltane Ranch is another example of how three entities and willing private land owners are working together to build a stronger park and a biologically viable open space system in the area.

Because SCAPOSD is actively pursuing fee title acquisition and conservation easements on properties in the Mayacamas Ridge, the Sugarloaf Ridge State Park General Plan identifies general criteria for evaluating potential acquisition properties for integration into the park, although it does not identify or recommend that specific properties be acquired.

2.2 SUMMARY OF PARK CONDITIONS AND RESOURCES

This section is the existing setting for environmental review of the General Plan. A detailed description of existing land uses, natural and cultural resources, recreational activities, facilities, and utilities in Sugarloaf Ridge State Park is provided in the sections that follow.

2.2.1 EXISTING LAND USES

Parkwide Land Uses

Sugarloaf Ridge State Park offers recreation areas with both day and overnight visitors; the Robert Ferguson Observatory; park administrative, maintenance, operations, and staff housing areas; and over 25 miles of hiking, mountain biking, and horse trails winding through the wildlands. Although various visitor-serving land uses are provided at Sugarloaf Ridge State Park, the facilities are primarily concentrated in the lower valley of Adobe Canyon, near Sonoma Creek. The trails leading up to the ridges offer expansive views of the wildlands in the Mayacamas Ridge and other mountaintops near and far as well as glimpses of cities and towns in the distance. Although not far from Kenwood and smaller towns on State Route 12, and only a few miles from the city of Santa Rosa, Sugarloaf Ridge State Park offers a wildlands-type experience for visitors.

Classification

Sugarloaf Ridge is classified as a state park. This classification is described in Public Resources Code, Section 5019.53 as follows:

> State parks consist of relatively spacious areas of outstanding scenic or natural character, oftentimes also containing significant historical, archaeological, ecological, geological, or other similar values. The purpose of state parks shall be to preserve outstanding natural, scenic, and cultural values, indigenous aquatic and terrestrial fauna and flora, and the most significant examples of ecological regions of California, such as the Sierra Nevada, northeast volcanic, great valley, coastal strip, Klamath-Siskiyou Mountains, southwest mountains and valleys, redwoods, foothills and low coastal mountains, and desert and desert mountains.
>
> Each state park shall be managed as a composite whole in order to restore, protect, and maintain its native environmental complexes to the extent compatible with the primary purpose for which the park was established.

> Improvements undertaken within state parks shall be for the purpose of making the areas available for public enjoyment and education in a manner consistent with the preservation of natural, scenic, cultural, and ecological values for present and future generations. Improvements may be undertaken to provide for recreational activities including, but not limited to, camping, picnicking, sightseeing, nature study, hiking, and horseback riding, so long as those improvements involve no major modification of lands, forests, or waters. Improvements that do not directly enhance the public's enjoyment of the natural, scenic, cultural, or ecological values of the resource, which are attractions in themselves, or which are otherwise available to the public within a reasonable distance outside the park, shall not be undertaken within state parks.

Surrounding Land Uses

Sugarloaf Ridge State Park is surrounded by parcels of both private and public land that are primarily wildlands or in rural agricultural use. Map 3 identifies Sonoma County General Plan designations in the area of Sugarloaf Ridge State Park. Overlayed on the General Plan designations are conserved lands that are protected by conservation easements in both Sonoma and Napa Counties. Sugarloaf Ridge State Park and Hood Mountain Regional Park are identified as *Park/Public Property*, which is open for public recreational use.

As shown on Map 3, the areas immediately adjacent to Sugarloaf Ridge State Park are designated either as Resources and Rural Development or as Land Intensive Agriculture. Lands designated as *Resources and Rural Development* are intended to protect natural resource lands; protect against intensive development of lands constrained by geologic hazards, steep slopes, poor soils, and other constraints; protect lands needed for agricultural production; and protect county residents from proliferation of growth into areas with inadequate public services and infrastructure. The inholdings between Sugarloaf Ridge State Park and Hood Mountain Regional Park, as well as lands south of the parks, are designated as Resources and Rural Development. Single-family dwellings, resource management and enhancement activities, recreational uses, livestock farming, crop production, schools, and churches are permitted in these areas.

The *Land Intensive Agriculture* designation refers to land capable of and generally used for agricultural production. The soil type and climate support relatively high production per acre of land. Vineyards currently occupy a portion of the land to the south of Sugarloaf Ridge State Park and on the property to the west of the park and south of Adobe Canyon Road. Farm worker and farm family housing is permitted at densities between 20 and 100 acres per residential unit.

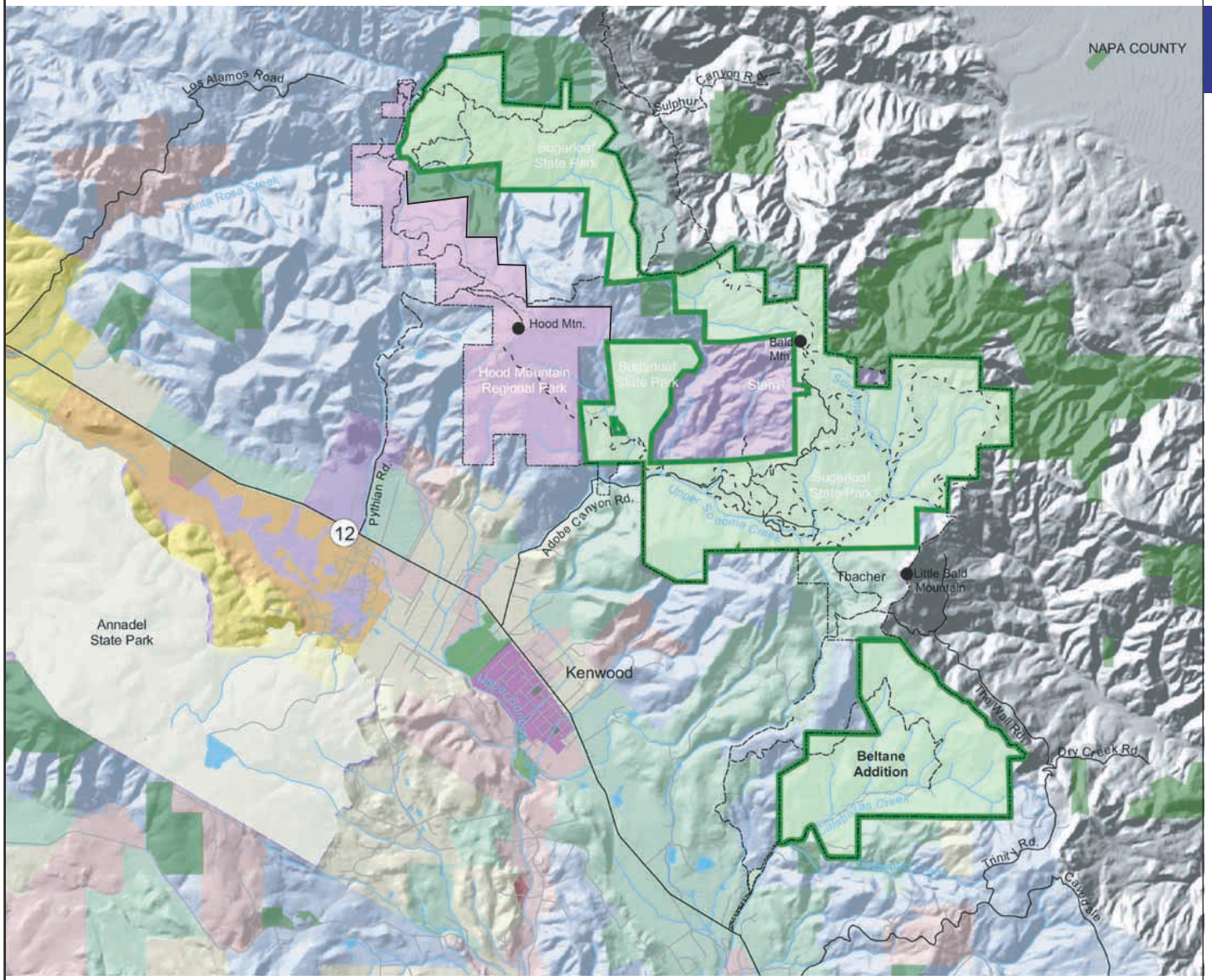
The Santa Rosa Creek Watershed Management Zone (formerly a portion of McCormick Ranch) was previously identified as *Land Extensive Agriculture*, which is intended to protect lands capable of and generally used for agricultural production; however, the designation needs to be updated to reflect the acquisition by the Department. A portion of the property along the northeastern ridge was retained by the previous owners and will remain designated as Land Extensive Agriculture.

Map 3: General Plan Land Use Designations

Sugarloaf Ridge State Park

GENERAL PLAN LAND USE DESIGNATIONS

MAP 3



- Commercial
- Land Extensive Agriculture
- Land Intensive Agriculture
- Park/Public
- Residential - High Density
- Residential - Low Density
- Residential - Medium Density
- Resources and Rural Development
- Rural Residential
- Urban Residential

- Conserved Lands

Basemap Features

- Study Area
- Sugarloaf Ridge State Park Boundary

- Paved Access Roads to Sugarloaf Ridge
- Other Paved Roads
- Dirt Roads with Access to Sugarloaf Ridge
- Other Dirt Roads
- Trails within Sugarloaf Ridge State Park
- Streams
- Parcel Boundaries

N

4,000 0 4,000 Feet

Source: Sonoma Ecology Center 2002

11.24.2003

EDAW

The designation allows farm worker and farm family housing at densities between 60 and 320 acres per unit. Houses, other structures, or any kind of development built within these allowed envelopes would be seen by visitors within the park and would alter the visitor's wildland experience.

Urban and Residential Development occurs exclusively along the State Route 12 corridor in the flatlands of the valley. As described previously, the urban population in the Sonoma Valley is increasing as the Bay Area population expands.

2.2.2 SIGNIFICANT RESOURCE VALUES

This section describes the natural resources in the General Plan study area and summarizes their resource values. This information, along with the GIS supporting it, is available in the Park Unit Data File.

Physical Resources

Meteorology

The climate at Sugarloaf Ridge State Park and in the surrounding area is mild year-round, often described as a Mediterranean-type climate. The close proximity of the Pacific Ocean and San Pablo Bay controls the temperature range, resulting in moderate seasonal and daily variations. Summers are dry and warm, with high temperatures often in the 90s, but it usually cools in the evening to the 40s. Fog is common in the mornings, particularly during summer, with an average of 20 days of dense fog per year. Winter temperatures drop into the 30s at night, with daytime highs in the 50s and 60s. Light snow falls occasionally, although temperatures below freezing are uncommon. Winds are generally from the south.

Annual precipitation averages 40 inches, most of which falls between November and April. Bald Mountain and Hood Mountain, within the General Plan study area, receive some of the most significant rain in the Mayacamas Ridge and thus contribute to flows of the headwaters of the Sonoma Creek, Santa Rosa Creek, Bear Creek, and Calabazas watersheds. Sonoma Creek, adjacent to Adobe Canyon Road, the primary Sugarloaf Ridge State Park entrance road, occasionally floods the entrance during winter storms.

Topography

The General Plan study area is characterized by the rugged topography of the western slopes of the Mayacamas Ridge. The parklands are mostly steep rocky hillsides leading to the ridgetops, with some intervening rolling hills. Within the study area, four main drainages separated by high ridges are accessible only by fire roads or trails. Santa Rosa Creek flows to the west and drains the northern Santa Rosa Creek Watershed Management Zone; Sonoma Creek, the upper reaches of which are known as Adobe Canyon, drains the central and main portion of Sugarloaf Ridge State Park (this drainage is the alignment of the main entrance road, Adobe Canyon Road); Bear Creek drains the Bear Creek Management Zone; and Calabazas Creek drains the Nunns Canyon

Management Zone. Calabazas Creek flows into Sonoma Creek shortly after leaving the park. The only gentle slopes within these three valleys are in the lower reaches.

The main valley floor in Sugarloaf Ridge State Park is that of Adobe Canyon, with base elevations of 1,200 feet above sea level. Views up the valley are dominated by Little Bald Mountain to the south, which rises to an elevation of 2,275 feet. To the north, Red Mountain (elevation 2,548 feet) is also visible next to Bald Mountain (2,729 feet). Bald Mountain provides commanding views of the surrounding area and Hood Mountain (elevation 2,730 feet), both of which are the highest peaks in the immediate area.

Most of the General Plan study area is near wildlands, with the exception of some fire roads, a few trails, and occasional homestead remnants. The visitor-serving facilities are concentrated in one of the more level areas of lower Adobe Canyon in the Sonoma Creek watershed. The steep hillsides and canyons slow cross-country travel and, as such, segregate the area into four subsections. The natural breaks in topography define the study area and separate the management zones of the park.

While the watersheds are separated by steep ridges, it is the mountainous topography and the remoteness of the wildlands that binds these high places together, despite being located only a few miles from the world-famous wine country of Sonoma Valley, and only a few miles from the city of Santa Rosa.

Geology

Sugarloaf Ridge State Park lies within the Mayacamas Ridge, one of the North Coast Ranges which trend north-south from the Oregon border to the San Francisco Bay (DeLorme 1998). Sugarloaf Ridge is contained within an uplifted fault block whose northern margin is Adobe Canyon. The geology within the park boundaries can be divided along Adobe Canyon into the northern and southern sections.

The northern area of the park is predominantly Franciscan Complex deposited during Jurassic time, approximately 200 million years ago. The Franciscan Complex contains chert, serpentine, hydrothermal-altered serpentine, conglomerate, and sandstones known as Great Valley Sequence rocks. The southern area of the park is predominantly Sonoma Volcanics, which erupted approximately 2.5 to 9 million years ago. They consist of basalt, andesite, and rhyolite lava flow beds interbedded with ash flows and ash tuffs. The ridges and summits of the park are outcrops, while the rolling hills and flat topography are made of alluvium.

One major fault, the St. John Mountain Thrust Fault, is found in the park in the northeastern section. It borders the contact between the Franciscan Complex rocks and the Great Valley Sequence sandstones. The Healdsburg–Rodgers Creek Fault is located approximately 14 to 16 miles west of the park, and the Mayacamas Fault, another potentially active major fault, is located approximately 30 miles northwest.

On Hood Mountain, sedimentary rock is located near Santa Rosa Creek; exposed metamorphic, serpentine outcrops are located two-thirds of the way to the summit; and

igneous bedrock is found throughout the park. Younger basalt flows have intruded the sedimentary rock. As in Sugarloaf Ridge State Park, the Sonoma Volcanics consist of basalt, andesite, and rhyolite with local deposits of tuff. Folding and faulting is visible near Santa Rosa Creek, where the chert, part of the Franciscan Complex, is folded and exposed. The sedimentary rock is Mesozoic, formed over 60 million years ago. The rock varies from several hundred to several thousand feet thick and consists mostly of sandstone and radiolarian cherts, formed beneath an ancient sea and uplifted.

A preliminary assessment of paleontological resources and limited field surveys has been conducted within Sugarloaf Ridge State Park (Naidu 1994). These surveys focused on road and trail cuts and stream edges and collected samples for macro and micro analysis.

Great Valley Sequence rocks in the southwest corner of the park include shale and sandstone with carbonaceous plant remains. Macroinvertebrate remains have been recovered just to the south of the park. Knoxville formation beds have been recognized in and near the park and may represent near-shore, shallow water, or deltaic environments, indicating a potential for significant finds of reptiles, birds, or early mammals. Several intersecting formations, including Knoxville formation rock, in the northern portion of the park also potentially contain fossil materials.

Soils

Diverse soils are present within the Sugarloaf Ridge State Park boundary, as shown on Map 4: Also, an evaluation of the soil's erosivity, calculated as a measure of a soil's likelihood to detach due to water movement., is shown on Map 5. Some of the most important properties considered to evaluate erosivity are texture, organic matter content, size and stability of structural aggregates in the exposed layer, permeability of the subsoil, and depth to a slowly permeable layer. The erosion potential of most of the park's soil types is high to very high and the runoff is fast for most soil types. Consequently, some of the park roads have been affected by erosion, particularly where they cross steep slopes with high erosion potential. The soils series present within the Park include the following:

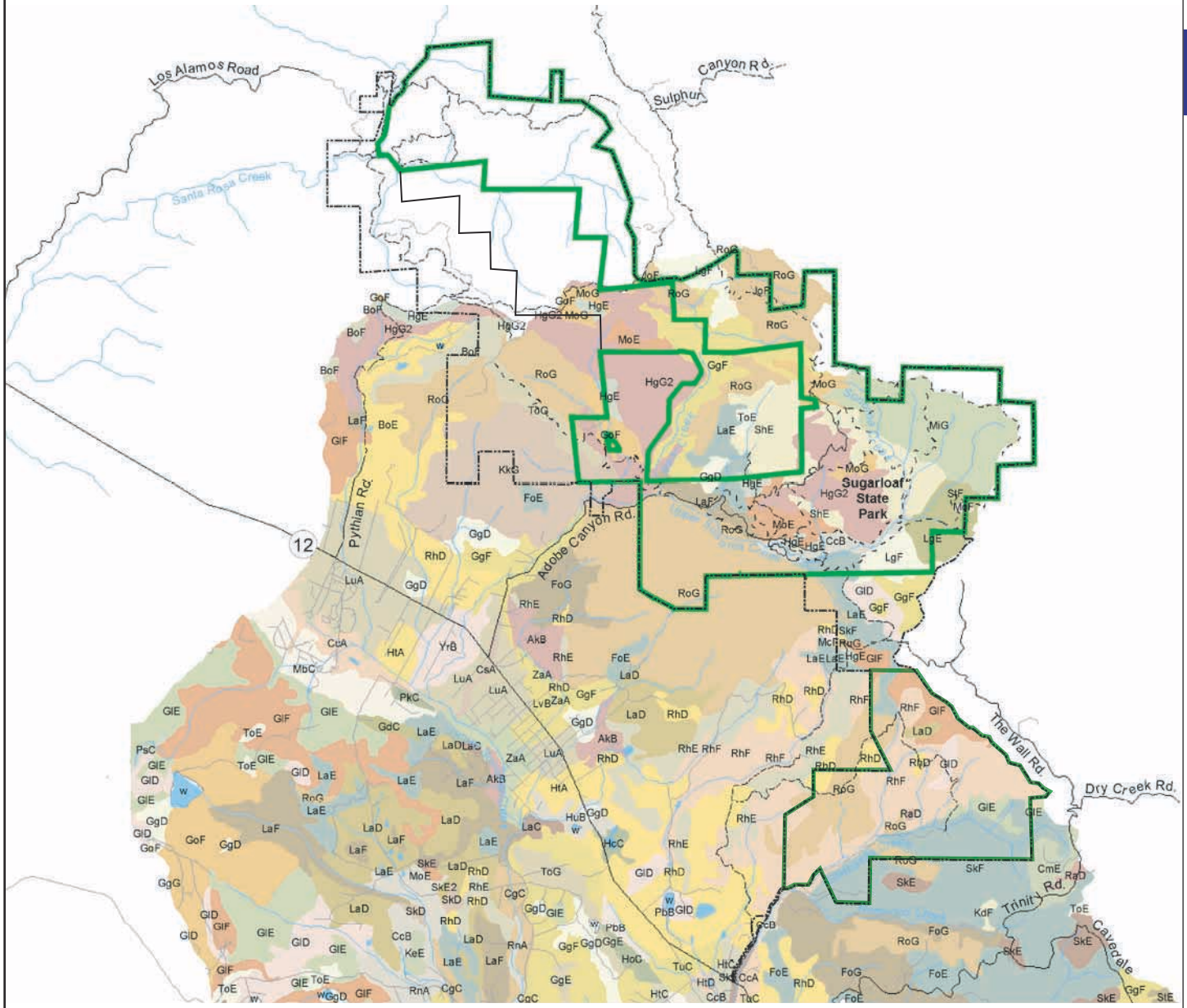
- Laughlin Loam (LgE and LgF): The Laughlin series consists of well-drained soils on uplands, made up primarily of fine, loamy, mixed soils typically formed in material weathered from sandstone, hard shale, and greywacke. Slopes range from strongly sloping to very steep, and elevations typically range from 800 to 3,500 feet. Vegetation associated with the Laughlin series includes annual grasses, perennial grasses, open stands of oak trees, and small amounts of brush.
- Montara Cobbly Clay Loam (MoG and MoE): The Montara series consists of well-drained soils on uplands, made up primarily of clay loam soils typically formed in material weathered from serpentine. Slopes range from 5 to 50%, and elevations typically range from 500 to 1,500 feet. Vegetation associated with the Montara series consists mainly of annual grasses and some digger pine.
- Clear Lake Clay Loam (Cc): The Clear Lake series consists of poorly drained soils on old alluvial fans and basins, made up primarily of clayey soils typically formed in alluvium derived from sedimentary rock. Slopes range from 0 to 2%,

Map 4: Sonoma Valley Watershed Soils

Sugarloaf Ridge State Park

SONOMA VALLEY WATERSHED SOILS

MAP 4



- CcB - Clear Lake Vlay Loam, 2-5% Slopes
- GgD - Goulding Clay Loam, 5-15% Slopes
- GgF - Goulding Clay Loam, 30-50% Slopes
- GlD - Goulding Cobbly Clay Loam, 5-15% Slopes
- GoF - Goulding-Toomes Complex, 9-50% Slopes
- HgE - Henneke Gravelly Loam, 5-30% Slopes
- HgG2 - Henneke Gravelly Loam, 30-75% Slopes
- JoF - Josephine Loam, 30-50% Slopes
- LaE - Laniger Loam, 15-30% Slopes
- LaF - Laniger Loam, 30-50% Slopes
- LgE - Laughlin Loam, 2-30% Slopes
- LgF - Laughlin Loam, 30-50% Slopes
- McF - Maymen Gravelly Sandy Loam, 30-50% Slopes
- MiG - Maymen-Los Gatos Complex, 30-75% Slopes
- MoE - Montara Cobbly Clay Loam, 2-30% Slopes
- MoG - Montara Cobbly Clay Loam, 30-75% Slopes
- RoG - Rock Land
- ShE - Sobrante Loam, 15-30% Slopes
- SkF - Spreckles Loam, 30-50%

Basemap Features

- Study Area Boundary
- Sugarloaf Ridge State Park Boundary
- Paved Access Roads to Sugarloaf Ridge
- Other Paved Roads
- Dirt Roads with Access to Sugarloaf Ridge
- Other Dirt Roads
- Trails within Sugarloaf Ridge State Park
- Streams
- Parcel Boundaries

N

4,000 0 4,000 Feet

Source: Sonoma Ecology Center 2002; USGS 1972

10.27.2003

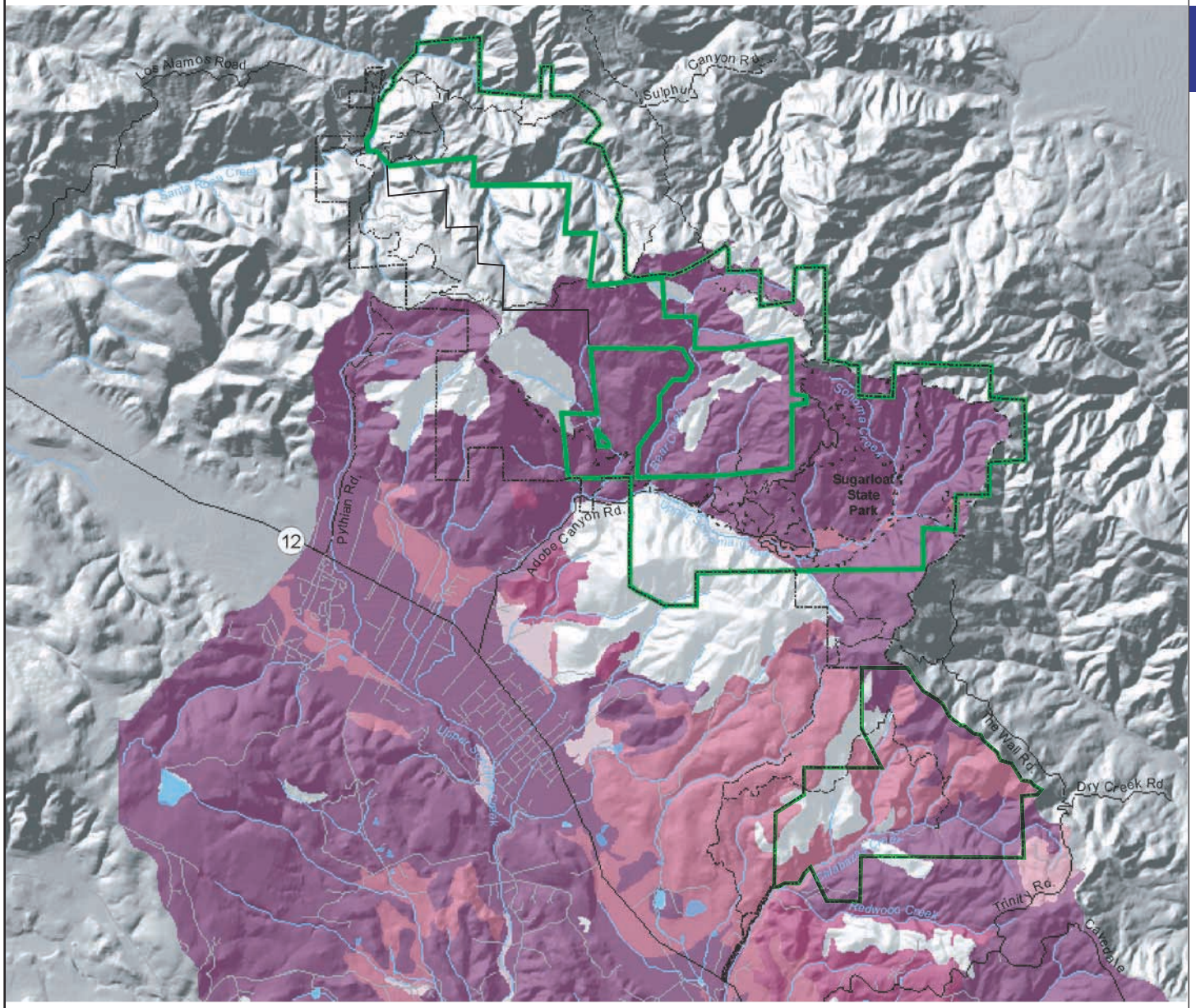
EDAW

Map 5: Soil Erosivity

Sugarloaf Ridge State Park

SOIL EROSIVITY*

MAP 5



0% Low
0.2%
0.24%
0.28% Moderate
0.32%
0.37% High

Basemap Features
- Study Area Boundary
- Sugarloaf Ridge State Park Boundary
- Paved Access Roads to Sugarloaf Ridge
- Other Paved Roads
- Dirt Roads with Access to Sugarloaf Ridge
- Other Dirt Roads
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* Soil erosivity is a measure of a soil's likelihood to detach due to water movement. Some of the most important properties are texture, organic matter content, size, and stability of structural aggregates in the exposed layer, permeability of the subsoil, and depth to a slowly permeable layer.

N

4,000 0 4,000 Feet

Source: Sonoma Ecology Center 2002; USGS 1972

10.27.2003

EDAW

and elevations typically range from 30 to 250 feet. Vegetation associated with the Clear Lake series includes annual grasses, forbs, and scattered oaks.

- Spreckels Loam (Sk): The Spreckels series consists of well-drained soils in lowlands, made up primarily of mixed loamy, gravelly, and clayey soils typically formed in weathered alluvial materials. Slopes range from 2 to 15%, and elevations typically range from 100 to 800 feet. Vegetation associated with the Spreckels series includes oaks, madrone, manzanita, poison oak, and grasses.
- Maymen–Los Gatos Complex (MiG): The Maymen series consists of heavily drained soils on uplands, made up primarily of gravelly loam soils typically formed in material weathered from sandstone and shale; and the Los Gatos series consists of well-drained soils on uplands, made up primarily of loam and loamy clay soils typically formed in material weathered from sandstone. The Maymen–Los Gatos complex consists of approximately 60% Maymen soils, 25% Los Gatos soils, 15% Lodo and Millsholm soils, and areas of rock outcrop, all of which are so intermingled that it is not practical to separate them for mapping. Slopes typically range from 50 to 75%. Vegetation associated with the Maymen and Los Gatos series include chamise, manzanita, shrubs, scrub oak, small trees, and grasses.
- Sobrante Loam (ShE): The Sobrante series consists of well-drained soils on uplands, made up primarily of loamy soils typically formed in material weathered from sandstone. Slopes range 5 to 50%, and elevations typically range from 400 to 2,000 feet. Vegetation associated with the Sobrante series includes annual grasses, scattered oaks, and a few digger pines.
- Laniger Loam (LaE): The Laniger series consists of excessively drained soils on uplands, made up primarily of fine sandy loam. Slopes range from gently to steeply sloping hills, and elevations typically range from 500 to 2,000 feet. Vegetation associated with the Laniger series includes blue oaks, live oaks, manzanita, ceanothus, poison oak, brush, and grasses.
- Goulding Clay Loam, Goulding Cobbly Loam (GgD, GlE): The Goulding series consists of somewhat excessively drained soils, made up primarily of loamy soils formed in material weathered from metavolcanic or metasedimentary rocks. Slopes range from 5 to 75%, and elevations typically range from 1,500 to 5,000 feet. Vegetation associated with the Goulding series includes scattered oak, digger pine, brush, grasses, and forbs.
- Henneke Gravelly Loam (HgE and HgG2): The Henneke series consists of excessively drained gravelly loams, with very gravelly clay subsoil. The two types of this series present in the park include Henneke gravelly loam 5 to 30% (HgE) and 30 to 75% slopes eroded (HgG2). Serpentinitic soils and sargent cypress vegetation are associated with the Henneke soils.

The following soil series are found within the Hood Mountain Regional Park boundary:

- The Boomer series contains well-drained loams with clay loam subsoil. The two soil types of this series are Boomer Loam 15 to 30% (BoE) and Boomer Loam 30 to 50% (BoF).
- The Goulding series consists of well-drained clay loams, with two types present in the park – the Goulding cobbly loams 15 to 30% and 30 to 50% (GIE).
- The Henneke series consists of excessively drained gravelly loams, with very gravelly clay subsoil. The two types of this series present in the park include Henneke gravelly loam 5 to 30% (HgE) and 30 to 75% slopes eroded (HgG2). Serpentinitic soils and sargent cypress vegetation are associated with the Henneke soils.
- The Kidd series consists of excessively drained gravelly loams – the Kidd very rocky loam 30 to 75% (KkG) is located in the southern portions of the park.
- On the steeper face of Hood Mountain, the Toomes rocky loam (ToG) is found on slopes from 30 to 75%, and rock outcrops (RoG).

Geologic Hazards

Slopes within the General Plan study area are generally quite steep – ranging from 30% to areas with nearly vertical cliffs. In addition to the hazard such slopes pose for landslides, they contribute to increased velocity of runoff into creeks.

A number of active and dormant landslides have been identified in Hood Mountain Regional Park, some of which are directly affecting infrastructure (roads, culverts, parking lots, etc.) (Sonoma County Regional Parks Department 2002a).

Water Resources

This section summarizes the existing water resources within the General Plan study area. As previously discussed, the area falls within two minor watersheds: Santa Rosa Creek watershed in the northern portion, which is a subunit of the Russian River watershed, and the Sonoma Creek watershed in the southern portion, which drains to San Pablo Bay. Bear Creek and Calabazas Creek flow into Sonoma Creek.

Santa Rosa Creek Watershed

The Santa Rosa Creek watershed encompasses an area of approximately 50,300 acres and includes the headwaters of Santa Rosa Creek, which flows into the Russian River. The northernmost portion of Sugarloaf Ridge State Park and the northernmost portion of Hood Mountain Regional Park lie in the northeastern corner of the Santa Rosa Creek Watershed.

Surface Water

Santa Rosa Creek flows 22 channel miles from its headwaters in Sugarloaf Ridge State Park and Hood Mountain Regional Park to the Laguna de Santa Rosa, then onto the Russian River, which empties into the Pacific Ocean. In addition, a number of intermittent tributaries within the Santa Rosa Creek watershed flow through these areas into Santa Rosa Creek.

Surface water features in Hood Mountain Regional Park include intermittent and perennial streams, seeps, and springs. In the northern portion of the park, these drain into Azalea Creek, North Fork Santa Rosa Creek, South Fork Santa Rosa Creek, and other seasonal drainages. The Main Fork of the Santa Rosa Creek is consistently perennial, while the North Fork of Santa Rosa Creek and Azalea Creek dry up in drought years.

Hood Mountain Regional Park contains approximately 0.5 miles of the North Fork and 0.6 miles of the Main Fork of Santa Rosa Creek. Mature riparian woodland borders the creek through the park. As described in the biological resources section, steelhead trout have been observed in the headwaters of Santa Rosa Creek since 1844 and, despite urbanization and human disturbance, adult steelhead are still seen. The Sonoma County Water Agency (Fisheries Division) regularly measures water and fish levels.

In 1997, representatives of the California Department of Fish and Game and the National Marine Fisheries Service inspected the North Fork and observed both good riffle pool development and pools deep enough to provide rearing habitat for salmonids in low-flow summer months. However, the North Fork also exhibited a layer of fine sediments (fines) covering the gravels, cobbles, and boulders such that salmonid eggs would have little chance of survival. The fines may originate from several sources, including degrading road cuts that parallel a third of the length of the North Fork.

Hydrology Modifications

Road development for powerlines and fire control, in addition to ranching and logging roads, has caused the greatest modification to the natural hydrology. New drainages have inadvertently been created parallel to existing drainages, causing severe erosion problems. Road re-engineering work conducted in 2001 and 2002 remediated these conditions on several miles of degraded roadbeds within the Sugarloaf Ridge State Park. During these efforts, culverts were increased in size and properly placed to avoid off-road impacts and accelerated sedimentation. The roadbeds were also outsloped to prevent water from being carried down the roadbeds, which also causes hydrologic modifications. Several additional miles of degraded road have been identified for future repair work.

Flood-prone Areas

Federal Emergency Management Agency (FEMA) data do not indicated the presence of flood-prone areas in the Santa Rosa Creek watershed or areas within the 100-year flood zone in the vicinity of the study area. Some degree of flooding can be expected in low-lying areas and perennial and seasonal creeks during periods of heavy rainfall and runoff, but is not considered substantial.

Sonoma Creek Watershed

The Sonoma Creek watershed drains an area of approximately 160,000 acres and encompasses the Adobe Canyon, Bear Creek watershed, and Nunns Canyon Management Zone within Sugarloaf Ridge State Park and the adjacent Thatcher property (private property between Adobe Canyon and Nunns Canyon). The Sonoma and Mayacamas Ridge and the basin contain diverse ecological communities, including redwoods, chaparral, grasslands, forest, and tidal estuary.

Surface Water

Sonoma Creek flows 28 channel miles from its headwaters in Sugarloaf Ridge State Park to San Pablo Bay. In addition, several creeks (including Upper Sonoma Creek, Bear Creek, Calabazas Creek, Redwood Creek and many unnamed intermittent tributaries, all of which ultimately drain into San Pablo Bay) are located within the General Plan study area.

The U.S. Geological Survey (USGS) maintained a streamflow gauging station in Sonoma Creek from 1955 to 1981. It was located at the southeast corner of the Boyes Boulevard bridge from 1955 to 1967 and then relocated to the Agua Caliente Road bridge over Sonoma Creek until its discontinuation in 1981.

Data were collected on daily streamflow and peak flood flows and used to calculate the total annual discharge of the creek, creek runoff in response to precipitation, flood flows on the creek, and low flows on the creek, as shown in Table 2-1.

Flood-prone Areas

FEMA data do not indicate the presence of flood-prone areas in the Sonoma Creek watershed or areas within the 100-year flood zone in the vicinity of the study area. Some degree of flooding can be expected in low-lying areas and perennial and seasonal creeks during periods of heavy rainfall and runoff, but is not considered substantial.

Table 2-1: Sonoma Creek Streamflow Data

	LOW	HIGH
Total annual discharge	1,000 af (1977)	114,000 af (1956)
Creek runoff in response to precipitation	15 inches (1977)	70 inches (1967)
Flood magnitude		8,800 cfs (December 1955)
Low flow	< 3 cfs (May – September)	

Sources: Sonoma Ecology Center and USGS

Note: Creek flows respond dramatically to precipitation. In general, more rain produces more runoff, but a higher percentage of precipitation becomes runoff in wet years than in dry years. In 1956, an estimated 58% (34 inches) of rainfall became runoff. In 1977, only 2% (0.3 inch) of rainfall became runoff. Thus, the amount of runoff in any given year is very sensitive to the amount of rainfall in that year. Streamflow is the water left over after precipitation has supplied the demands of evaporation from vegetation, soil, and water bodies. In a dry year, most and sometimes nearly all rainfall goes to meet evaporation and transpiration demands, and thus there would be very little streamflow. For example, in 1977, the driest year of the record, no flow was recorded at the gauge in most of June and all of July, August, and September.

af = acre-feet

cfs = cubic feet per second

Biological Resources

Significant biotic resources in the General Plan study area were determined through a review of existing documentation; consultation with biologists familiar with the local biological resources; and consultation with Department employees. Sources of information reviewed by biologists for this General Plan also include the California Natural Diversity Database and a number of documents on file with the Department, as listed in the References chapter of this report. Also included is the *McCormick Sanctuary Natural Resource Analysis and Enhancement Plan*, prepared by Circuit Rider Productions, Inc. (California Rider Productions 1999), which provides baseline information about the natural resources of the Santa Rosa Creek Watershed Management Zone. The plan assesses the existing natural features, identifies sensitive habitat and areas where trail and public access should be limited, outlines opportunities for restoration, and lists potential wildlife associations based upon habitat types/geographic area.

Regulatory Background

Many biological resources in California are protected and/or regulated by laws, regulations, and policies. Key regulatory compliance issues that may need to be addressed prior to implementation of the General Plan are listed below. A description of each is provided in Appendix A.

- Federal Endangered Species Act
- Clean Water Act
- California Endangered Species Act
- Section 1600 of the California Fish and Game Code
- Section 3503.5 of the California Fish and Game Code

Plant Life

Vegetation Types

A variety of vegetation types occurs within the General Plan study area. These types include the following:

- Non-native grassland
- Native grassland
- Chamise chaparral
- Mixed chaparral
- White alder riparian woodland
- Various types of oak woodland
- California bay, big-leaf maple
- Mixed evergreen forest
- Douglas-fir

- Coast redwood forest

Existing vegetation in the General Plan study area is shown in Map 6.[3] A plant list compiled from previous botanical studies in the General Plan study area is provided in Appendix C.

All of these vegetation types are considered to represent important resource values. The mixed evergreen forest and oak woodland types are the most common vegetation types in the General Plan study area. The riparian woodland, mesic herbaceous, chaparral, and other types are important for habitat diversity. They do not cover as much area as the mixed evergreen forest and oak woodland types, but provide habitat for many of the park's species that would not otherwise occur in the park. In addition, areas within the riparian woodland and the mesic herbaceous vegetation could be considered jurisdictional wetlands and therefore fall under the jurisdiction of regulatory agencies.

The vegetation designations follow as closely as possible to the naming system developed in Sawyer and Keeler-Wolf (1995). In some cases, the vegetation types were grouped because they cannot be readily distinguished and mapped in the field. Mesic herbaceous and mixed chaparral are examples of aggregating vegetation types.

Mesic Herbaceous. Mesic herbaceous vegetation occurs in areas that are seasonally or permanently wet. It grows in marshy areas, seeps, and along the edges of watercourses and ponds. Sedge (*Carex* spp.) and rush (*Juncus* spp.) commonly occur in this vegetation type. Other species include nut sedge (*Cyperus eragrostis*), rabbit's foot grass (*Polypogon monspeliensis*), and spike rush (*Eleocharis* sp.).

Non-native Grassland. Non-native annual grasses and forbs from Europe dominate most of the grasslands in the General Plan study area. These grasslands occur in patches, and cover of these grassland approaches 100%. The dominant species include slender oats (*Avena barbata*), wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). Yellow-star thistle (*Centaurea solstitialis*) is often a dominant of the grassland. Common associates include air grass (*Aira caryophyllea*), little rattlesnake grass (*Briza minor*), Italian ryegrass (*Lolium multifiorum* and *L. perenne*), medusa head (*Taeniatherum caput-medusae*), sweet-pea (*Lathyrus cicera*), vetch (*Vicia villosa*), and various species of clover (*Trifolium* spp.).

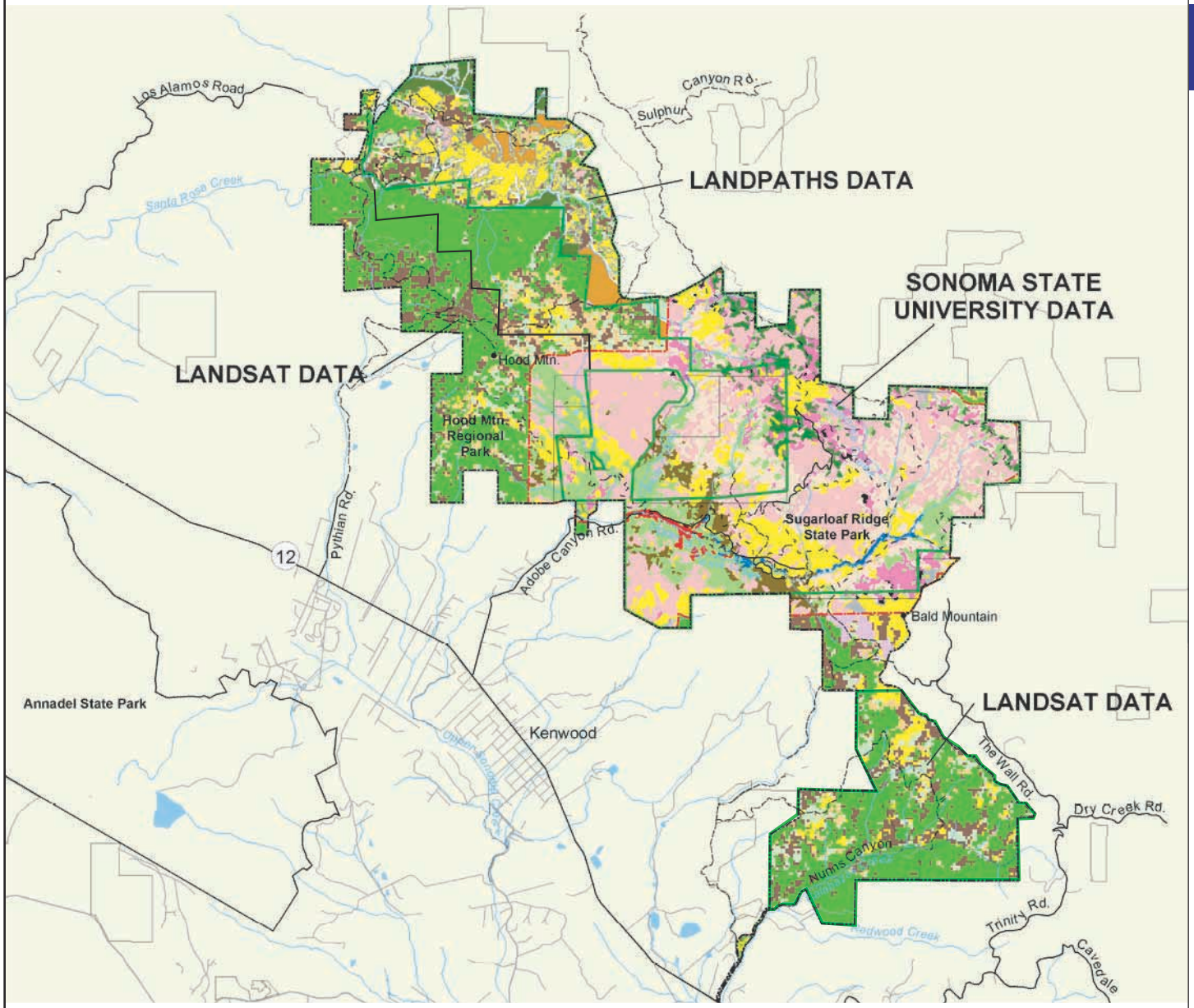
Map 6: Vegetation

[3] The vegetation map incorporates different methodologies by different researchers to map the vegetation. The LandSat methodology provides the most general mapping over Hood Mountain Regional Park and the southern portion of the General Plan study area, including the Nuns Canyon Management Zone. For the Santa Rosa Creek Watershed Management Zone (formerly a portion of the McCormick Ranch), Circuit Riders prepared a resource management plan in which it converted vegetation coverages from computer-aided design format. For the rest of Sugarloaf Ridge State Park, Sonoma State University prepared vegetation coverages in association with the state's sudden oak death syndrome research. Consequently, different names apply to the same vegetation types, and in some cases different vegetation types were grouped into a single category, depending on the ability to distinguish different types from aerial photographs. Where possible, the different methodologies were reconciled or the different types were grouped together. In some cases it is not possible to reconcile the different methodologies, such as those for evergreen forest and mixed forest. These two types are likely a mixture of Douglas-fir forest, different types of oak woodland, and mixed evergreen forest.

Sugarloaf Ridge State Park

VEGETATION

MAP 6



Basemap Features

- Study Area Boundary
- Sugarloaf Ridge State Park

Three Vegetation Coverages

LANDSAT*

- Oregon Oak, Black Oak, Valley Oak
- Evergreen Forest
- Mixed Forest
- Scrub and Chaparral
- Orchards/Vineyards
- Grassland

LANDPATH*

- Grasslands
- Coast Live Oak/Oregon Oak Woodland
- Chamise Chaparrall
- Douglas Fir
- Mixed Chaparral
- Mixed Evergreen Forest
- Canyon Live Oak Woodland

SSU GIC*

- Coast Live Oak
- California Bay
- Chamise/Chaparral
- Canyon Oak
- Black Oak
- Douglas Fir
- Grey Pine Chaparral
- Big Leaf Maple
- Grasslands
- Water
- Coyote Brush
- Mixed Chaparral
- Valley Oak
- Redwood
- White Alder Riparian
- Coverage Extent

N

4,000 0 4,000 Feet

Source: LANDPATHS (Santa Rosa Creek Watershed Management Zone Only); LANDSAT imagery: Sonoma State University Geographic Information Center (Sugarloaf Property Plus)

10.27.2003

EDAW

Livestock grazing of park grasslands between 1942 and 1964, and possibly earlier (California Department of Parks and Recreation 1992) probably helped to favor non-natives over native species. Occasional native species within the annual grasslands include yellow mariposa lily (*Calochortus luteus*) and minature lupine (*Lupinus bicolor*). Blue wildrye (*Elymus glaucus*), a native perennial grass, often occurs where the grasslands border with oak woodland.

Native Grassland. Most of the native grasslands occur on serpentine substrates at the interface between annual grassland and serpentine chaparral. The native grasslands are dominated by various species of needlegrass (*Nassella* spp), California oatgrass (*Danthonia californica*), and/or blue wildrye (*Elymus glaucus*). Native wildflower diversity is higher in this plant community than in the non-native grassland. Representative wildflowers include California buttercup (*Ranunculus californicus*), blue dicks (*Dichelostemma capitatum*), and blue-eyed grass (*Sisyrinchium bellum*). Percent cover of vegetation is lower than that of the non-native grassland.

Coyote Brush Scrub. Coyote brush scrub is dominated by coyote brush (*Baccharis pilularis*). Poison oak (*Toxicodendron diversilobum*) and sticky monkey flower (*Diplacus aurantiacus*) are associates of the coyote brush scrub. This vegetation appears to grow in relatively small patches at the edge of meadows. Stands range from sparse to dense, and the plants may grow taller than 8 feet.

Chamise Chaparral. Chamise chaparral occurs primarily on south-facing slopes. Species diversity is relatively low, with chamise (*Adenostoma fasciculatum*) forming a closed shrub canopy. Occasional shrub associates include common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), toyon (*Heteromeles arbutifolia*), and scrub oak (*Quercus berberidifolia*). The sparse understory is made up primarily of nodding needlegrass (*Nassella cernua*). During the first few years after burns and other forms of disturbance, herbaceous species diversity increases. Post-fire associates include various species of herbs, including *Apiastrum angustifolium* and *Emmenanthe penduliflora*. Napa hog-fennel (*Lomatium repostum*), which is on the California Native Plant Society watch list (List 4), occurs in this community.

Mixed Chaparral. Mixed chaparral consists of different phases, including a Jepson musk-brush phase and a manzanita phase, both of which are included as mixed chaparral and scrub and chaparral on the vegetation map.

- Jepson Musk-Brush Chaparral. A type of chaparral dominated by Jepson musk-brush (*Ceanothus jepsonii* var. *jepsonii*) and leather oak (*Quercus durata*) occurs on serpentine-derived soils. Torrey's melic grass (*Melica torreyana*) frequently dominates the sparse understory. Other understory associates includes the following forbs: *Galium porrigens* var. *tenue, Lessingia ramulosa*, and *Malacothrix floccifera*. A healthy population of Sonoma ceanothus (*Ceanothus sonomensis*) occurs along Goodspeed Trail, on the south-facing slope west of Bear Creek. This species is considered rare statewide by the California Native Plant Society (California Native Plant Society 2001).

- **Manzanita Chaparral.** Manzanita chaparral is dominated by various combinations of Eastwood manzanita (*Arctostaphylos glandulosa*), white-leafed manzanita (*Arctostaphylos viscida*), Sonoma manzanita (*Arctostaphylos stanfordiana*), and leather oak. In addition, locally important shrubs include chamise, wavyleaf ceanothus (*Ceanothus foliosus*), Sonoma ceanothus, Calistoga ceanothus (*Cenothus divergens*), buckbrush (*Ceanothus cuneatus*), California scrub oak (*Quercus beriberidifolia*), and poison oak. The understory is limited to seasonal herbs and several species of native grasses.

Gray Pine Woodland. The gray pine woodland consists of sparse to dense stands of gray pine (*Pinus sabiniana*) growing within a chaparral and California fescue (*Festuca californica*) understory. This vegetation appears to be restricted to serpentine substrates.

Sargent Cypress Woodland. The sargent cypress woodland is recognized by the dominance of sargent cypress (*Cupessus sargentii*). The type occurs on serpentine and other ultramafic rocks, primarily on the north-facing slope of Hood Mountain. The structure and composition of the sargent cypress woodland varies with soil depth. Sargent cypress woodland is found on the deeper and more fertile soils. This woodland forms a closed canopy with trees reaching to heights of 30 feet. A pygmy phase of the sargent cypress woodland occurs on the shallower and less fertile soil, where dwarf trees, generally 6 to 8 feet tall, form a scrub-like vegetation.

Both the woodland and pygmy phases of the sargent cypress type share a number of common associated species. These include star lily (*Zigadenus fremontii*), leather oak, Indian warrior (*Pedicularis densiforus*), green monardella (*Monardella viridis*), climbing bedstraw (*Galium porrigens*), scarlet fritillary (*Fritillaria recurva*), yellow globe lily (*Calochortus amabilis*), and white-leafed manzanita. The higher site quality of the sargent cypress woodland permits a richer flora. The better site conditions of the sargent cypress woodland are indicated by the presence of such species as poison oak, California coffeeberry (*Rhamnus californica*), toyon (*Heteromeles arbutifolia*), California fescue, and spice bush (*Calycanthus occidentalis*) (McBride and Barnhart, Undated).

Knobcone Pine Woodland. Several stands of knobcone pine woodland occur on both the north- and south-facing slopes of Hood Mountain. These sites are characterized by low nutrient status and low moisture availability, but are not as limited as those sites occupied by the pygmy sargent cypress or chaparral types.

Knobcone pine woodland is dominated by knobcone pine (*Pinus attenuata*), which forms a partially closed canopy. Occasionally, sargent cypress, canyon live oak (*Quercus chrysolepis*), and interior live oak (*Quercus wislizenii*) occur as associated tree species. The understory of the knobcone pine woodland supports a relatively small number of shrub and herb species. Common among these are the manzanitas, chaparral pea (*Pickeringia montana*), leather oak, and poison oak. Herbaceous species such as star lily, pine violet (*Viola lobata*), Fernald's iris (*Iris fernaldii*), and green monardella occur as understory species, but the general impression of the woodland floor is its carpet of pine needles and the presence of larger woody debris.

White Alder Riparian Woodland. White alder riparian woodland occurs along the larger watercourses of the General Plan study area. It consists of a multi-layered type and includes tall trees, shorter trees, shrubs, vines, and herbs. White alder (*Alnus rhombifolia*) dominates the upper tree layer, while the lower layer consists of big-leaf maple (*Acer macrophyllum*), Oregon ash (*Fraxinus latifolia*), and California bay (*Umbellularia californica*). The shrub layer consists primarily of woodland rose (*Rosa gymnocarpa*), snowberry (*Symphoricarpos* sp.), spice bush (*Calycanthus occidentalis*), hazelnut (*Corylus cornuta*), California blackberry (*Rubus ursinus*), and several fern species. Prominent vine species include California grape (*Vitus californica*), California pipe-vine (*Aristilochia californica*), honeysuckle (*Lonicera* sp.), and poison oak. Herbaceous species include mugwort (*Artemisia douglasiana*), nettle (*Urtica dioica* ssp. *holosericea*), sedge, and rush species. A non-native herb (*Rhagadiolus stellatus*) not been reported from elsewhere in Sonoma County has become established in several locations within the riparian corridor (Best et al. 1996). In the lower stretches of the Sonoma Creek, white alder riparian woodland intergrades with coast redwood forest.

Coast Live Oak Woodland. Oak woodlands within the park are highly variable. Coast live oak (*Quercus agrifolia*) dominates a majority of the oak woodlands in the park. This woodland is often dominated by large coast live oak trees with a diameter at breast height (dbh) of more than 20 inches, interspersed with numerous multiple-stemmed coast live oak and California bay trees that range between 6 and 10 inches dbh. Occasional California buckeye (*Aesculus occidentalis*), valley oak (*Quercus lobata*), and Oregon oak (*Quercus garryana*) also occur in the coast live oak woodland. The understory is generally sparse, except in tree gaps where a variety of herbs grows, including a native sweet-pea (*Lathyrus vestitus*), deerbrush (*Lotus scoparius*), and woodland madia (*Madia gracilis*). Shade-tolerant species in this community include woodland sanicle (*Sanicula crassicaulis*), toyon (*Heteromeles arbutifolia*), woodland rose, snowberry (*Symphoriocarpos* sp.), and poison oak. Saplings of Douglas-fir (*Pseudotsuga menziesii*) also occur in this type.

California Bay Woodland. California bay woodland is dominated by California bay, with cover of bay approaching 100%. The understory consists mostly of leaves, with a few wood ferns.

Canyon Live Oak Woodland. Canyon live oak is the dominant tree of canyon live oak woodland. This woodland normally occurs toward the upper slopes of ridges of the General Plan study area. Other trees that occur in the canyon live oak woodland are Oregon oak, coast live oak, big-leaf maple, black oak (*Quercus kelloggii*), madrone (*Arbutus menziesii*), and California bay. Shrubs include toyon, common manzanita, and poison oak.

Black Oak Woodland. Stands of black oak occur in scattered locations within the General Plan study area, frequently with a dense understory of California fescue. This type occurs on gentle slopes.

Oregon Oak Woodland. Oregon oak woodland consists of a fairly dense stand of mostly multi-stemmed Oregon oak, 6 to 10 inches dbh, over an herbaceous understory dominated by various grasses, including California fescue. Coast live oak and California bay

occasionally occur as subdominant species in the Oregon oak woodland. Some encroachment of Douglas-fir seedlings and saplings is evident.

Valley Oak Woodland. The valley oak woodland is similar to the Oregon oak woodland, with the exception that it is dominated by valley oak. Other species include a few individuals of other oak species. The understory consists of grass and a few species of forbs; woody species are largely absent from the understory.

Big-leaf Maple Woodland. Big-leaf maple is the dominant tree of big-leaf maple woodland. This woodland often occurs in the bottoms of canyons or on relatively moist, north-facing slopes. A common associate of this woodland is black oak.

Mixed Evergreen Forest. The mixed evergreen forest is one of the most extensive vegetation types in the General Plan study area. It is located throughout the study area from the lowest to the highest elevations, primarily on the better-developed and deeper soils. However, due to differences in soil moisture, topography, and geology, there are several rather distinct associations or phases within this type in which different tree species assume dominance. Along a soil moisture gradient from wet to dry, these phases include: California bay, Douglas-fir/hardwood, Douglas-fir, madrone, and canyon live oak.

The mixed evergreen forest is recognized primarily by the presence of Douglas-fir as a major or subdominant component. Other dominant tree species are broad-leaf, evergreen species such as California bay, madrone, tan oak (*Lithocarpus densiflorus*), and canyon live oak. Other broad-leaf trees such as big-leaf maple, Oregon oak, black oak, coast live oak, and interior live oak may be locally important throughout this type. The forest structure is typically dense, resulting in a very shaded understory environment. Throughout much of the mixed evergreen forest, there is very little development of an understory because of the high density of the overstory. The following species occur in areas where the overstory thins: creeping snowberry (*Symphoricarpos mollis*), wood fern (*Dryopteris arguta*), onion grass (*Melica* spp.), hedge nettle (*Stachys ajugoides* var. *rigida*), woodland sanicle, poison oak, and starflower (*Trientalis latifolia*).

Douglas-Fir Forest. Douglas-fir forest consists of nearly pure stands of Douglas-fir. The fir grows at almost 100% cover and is virtually the sole species of tree in the overstory. If a substantial component of other tree species were to occur, the vegetation would be classified as mixed evergreen forest. A few big-leaf maple, tan oak, madrone, black oak, and California bay can occur in this vegetation type.

Coast Redwood Forest. Coast redwood forest is restricted to the more mesic portions of Adobe Canyon, along Sonoma Creek, at lower elevations where the creek has deeply incised the canyon. This stand of coast redwood (*Sequoia sempervirens*) represents one of the easternmost in the state (another stand occurs near the small town of Angwin approximately 9 miles to the north-northeast in Napa County). Coast redwood forest is part of a riparian community in the General Plan study area. On average, the percent cover of coast redwood is 75%. Based on seven tree cores, the age of the older coast redwood trees is roughly 120 years, thus it is presumed that the trees were logged circa 1875 (Bowcutt 1999). Evidence of stump sprouting from trees cut during this time is

common. Tan oak is a frequent tree associate, although percent cover is low, at approximately 5%. The herbaceous cover is sparse with low species richness. Herb and fern associates include trail plant (*Adenocaulon bicolor*), wood fern, redwood sorrel (*Oxalis oregana*), and sword fern (*Polystichum munitum*).

Plant Succession

In general (with the exception of the coast redwood and white alder riparian), plant succession moves toward a Douglas-fir-dominated plant community. Douglas-fir seedlings and saplings have been observed in most of the vegetation types in the General Plan study area.

The different types of chaparral, sargent cypress woodland, and knobcone pine woodland are dependent on fire. Without fire, the cones of the sargent cypress and knobcone pine will not open and drop their seed. The chaparral species either crown-sprout from the base of the plants after a fire, or the seeds require the heat of fire to germinate. Without fire, this vegetation becomes invaded by other species, such as coast live oak, California bay, or Douglas-fir.

Sensitive Habitats

Sensitive habitats are those that have experienced a precipitous decline since the arrival of early Americans to California, due to conversion of the land to agricultural, commercial, or residential uses. In some cases, poor management and the influx of invasive species have also reduced the value of sensitive habitats.

The sensitive habitats that occur in the General Plan study area are the mesic herbaceous, native grasslands, white alder riparian woodland, rock outcrops, and serpentine habitats. All of these types have been discussed in the section on vegetation, with the exception of rock outcrops and serpentine areas, which are discussed below.

Rock Outcrops. Rock outcrops are important for both plant and animal diversity. The shallow soils of the rock outcrops provide areas where some native species can compete successfully with the non-native grass species. The rocks also provide protection from herbivores and allow seedlings to become established before they are eaten by rodents or large herbivores. As wildlife habitat, the rock outcrops are used for denning and as sentinel areas.

Serpentine Areas. Serpentine is a substrate that supports a high proportion of native plant species because of its unique chemistry. Certain native species have become adapted to grow on serpentine substrates, while most non-native species have not. Because much of California's ecosystems, especially in the lower elevational areas, have been invaded by non-native species, areas supporting a high proportion of native herbaceous species are considered special. In addition, serpentine soils support a number of special-status plant species, such as the Sonoma ceanothus found in the General Plan study area.

Invasive Non-native Species

Non-native (exotic, alien, nonindigenous) species are those that have not evolved in a particular area but have been introduced through human activities, either incidentally or deliberately. Most non-native species are not invasive and do not cause adverse effects on natural plant and animal communities. Nevertheless, some non-native species have resulted in the conversion of native habitats to a non-native vegetation type, with a corresponding reduction of native plants and degradation of wildlife habitat.

Species in the General Plan study area with the potential to convert native habitats to areas of non-native vegetation are Himalaya blackberry (*Rubus discolor*), yellow-star thistle, and medusa head. These species are all on the Most Invasive Wildland Pest Plant list developed by the California Exotic Pest Plant Council.

Non-native plants that occur in the General Plan study area and are classified as Wildland Plants of Lesser Importance by the California Exotic Pest Plant Council are bull thistle (*Cirsium vulgare*), tall fescue (*Festuca arundinacea*), poison hemlock (*Conium maculatum*), Italian thistle (*Carduus pycnocephalus*), periwinkle (*Vinca major*), Malta star-thistle (*Centaurea melitensis*), and eucalyptus and harding grass (*Phalaris aquatica*)

Barbed goatgrass (*Aegaelops triuncialis*) is on a list that indicates more information is needed regarding its invasiveness and potential threat to ecosystems. Milk thistle (*Silybum marianum*), an invasive non-native species, is not considered a threat to native ecosystems by the California Exotic Pest Plant Council. Nevertheless, this species tends to dominate grassland areas about one-quarter acre in size.

Two of the species listed above, yellow-star thistle and Italian thistle, are on the California Department of Food and Agriculture's list of noxious weeds. Efforts by the Department to reduce the occupation of yellow-star thistle began in 1984 and have continued aggressively using a combination of prescribed burning and herbicide application. In 1993, a project was initiated to study the use of fire as a yellow-star thistle control method. Results to date have been encouraging, with a 99.5% reduction of the yellow-star thistle seed bank at sites within the park following three annual consecutive prescribed burns. In 1993, the California Department of Food and Agriculture also established a multiyear biocontrol program to release insects that attack only yellow-star thistle seed heads and destroy their developing seeds. Establishment of these natural enemies in the park has resulted in a decrease in yellow-star thistle seed production.

Aquatic Habitat Values

The main watercourses that flow within the General Plan study area are Sonoma Creek, Santa Rosa Creek, and Calabazas Creek. These watercourses support relatively pristine stands of native vegetation and spawning habitat for steelhead (*Oncorhynchus mykiss*). Steelhead have been observed in Sonoma Creek within Sugarloaf Ridge State Park. Chinook salmon (*Oncorhynchus tshawytscha*) occur in Sonoma Creek in Adobe Canyon about one-half mile below the boundary of the park. Adult salmon have been observed in this area for two years, and juveniles were observed last year.

For spawning, steelhead and chinook salmon require relatively cold water and gravels that are located in riffles. These areas provide the oxygen concentration necessary for successful development of the eggs. The spawning areas are especially susceptible to the deposition of sediment. Sediment prevents oxygen from reaching the eggs and can destroy a spawning area. Erosion is occurring along a portion of the headwaters of Sonoma Creek and may affect spawning habitat.

Wildlife Values

Wildlife Use

The diversity of habitat types in the General Plan study area supports a diversity of wildlife species. These habitat types include grassland, mesic herbaceous–marshy areas, scrub and chaparral, oak woodlands, mixed evergreen forest, coniferous woodlands, redwood forest, and riparian woodlands.

Mesic Herbaceous–Marshy Areas. The mesic herbaceous marshy areas that occur in the General Plan study area mainly consist of sedges and rushes. These areas are particularly important as habitats for amphibians, such as western toad (*Bufo boreas*) and Pacific treefrog (*Hyla regilla*), where they can remain moist. Predators such as garter snakes (*Thamnophis* spp.), ring neck snakes (*Diadophis punctatus*), and shrews (*Sorex* spp.) hunt for prey in these areas.

Grassland. The grassland type provides important habitat for a number of ground nesting birds such as the western meadowlark (*Sturnella neglecta*), lark sparrow (*Chondestes grammacus*), and Savannah sparrow (*Passerculus sandwichensis*). Other common species include meadow voles (*Microtus californicus*), ground squirrels (*Spermophyllus beecheyi*), and Botta pocket gophers (*Thomomys bottae*). A number of predators, from amphibians to mammals, depend heavily upon grasslands for their prey. Western toad and Pacific treefrog will forage in grasslands. Western fence lizards (*Sceloporus occidentalis*), alligator lizards (*Elgaria* spp.), western skink (*Eumeces skiltoneanus*), gopher snake (*Pitouphis melanoleucus*), and racer (*Coluber constrictor*) also forage in grassland areas. Several avian predators, such as the red-tailed hawk (*Buteo jamaicensis*), great-horned owl (*Bubo virginianus*), and loggerhead shrike (*Lanius ludovicianus*) all forage in grassland areas.

Grassland areas are very important for mammalian predators, including long-tailed weasel (*Mustela frenata*), gray fox (*Urocyon cinereoargenteus*), and coyote (*Canus latrans*). Black bear (*Ursus americanus*) and mountain lion (*Felis concolor*) are occasionally observed in Sugarloaf Ridge State Park. They would be expected to forage throughout the different habitats in the park, including the edge of grassy areas. Mountain lions typically require a substantial amount of cover to screen them from their prey and would be expected in rocky outcrops and at the edge of forested or brushy areas. Bears would be expected to forage in forested areas, areas that produce a large amount of berries such as manzanita chaparral, and along watercourses.

Scrub and Chaparral. A number of species are largely restricted to scrub and chaparral areas, while other species use these areas for cover and forage in adjacent grassland. Scrub and chaparral areas support many of the same species as grassland. In addition, western

rattlesnakes (*Crotalis viridis*) are probably more common in shrub habitats than in grassland and forest. Birds that occur in chaparral areas include California thrasher (*Toxostoma redivivum*) and wrentit (*Chamaea fasciata*). Deer mice (*Peromyscus maniculatus*) and brush rabbits (*Sylvilagis bachmanii*) also occur in scrub and chaparral habitats.

Coniferous Woodland. The knobcone pine forest is an important habitat for the dusky-footed wood rat (*Neotoma fuscipes*), which builds houses of sticks on the ground. Migratory song birds that over-winter in Mexico and Central America depend upon the chain of knobcone pine woodland stands for resting cover as they migrate north through the California Coast Ranges each spring. Examples of these species are the ash-throated flycatcher (*Myiarchus cinerascens*), western flycatcher (*Emipodonax difficilis*), and orange-crowned warbler (*Vermivora celara*).

The wildlife habitat value of the sargent cypress woodland is somewhat similar to that of knobcone pine woodland, while the pygmy phase of the type is similar in habitat value to the chaparral. One species of butterfly, Muir's hairstreak (*Mitoura nelsoni muiri*), lays its eggs only on sargent cypress, and its larvae feed only on the sargent cypress.

Oak Woodland and Big-leaf Maple Woodland. Oak woodlands have high wildlife value. Over 350 vertebrate species and 5,000 insect species are found in California's oak woodland types. A combination of varied food, cover, nest sites, and other factors make the maintenance of these types particularly important for the preservation of wildlife. A number of species nest or use the oaks as cover and then forage in adjacent plant communities. These species include red-tailed hawk and great-horned owl. The characteristic bird fauna of oak woodlands includes chestnut-backed chickadee (*Parus rufescens*), oak titmouse (*Parus inoratus*), and bushtit (*Psaltriparus minimus*). Other species of birds commonly occur in the oak woodland and include hairy, Downey, Nuttall's, and acorn woodpeckers; Hutton's vireos; and orange-crowned warblers.

Western gray squirrel (*Scirus griseus*) also occurs in oak woodlands, where they construct stick nests in the branches of the trees or use cavities for their nests. Deer (*Odocoileus hemionus*) seek cover in the oak woodland and browse the vegetation in the woodland as well as graze in grasslands. Other mammals, such as bobcat (*Lynx rufus*), coyote, and gray fox, also hide in oak woodland. Foraging by these species occurs among the oaks or in other habitat types.

Douglas-Fir, Coast Redwood, and Mixed Evergreen Forest. The California black-tailed deer utilize the cover of these forest types and may bed down in these habitat areas at night, but tend to feed in adjacent types offering more browse (e.g., chaparral and oak woodland). Raptors often nest in the tall trees of this type when close to grassland areas where they feed. Northern spotted owls, a federally threatened species, will use mature stands of Douglas-fir and coast redwood for nesting. Foraging by this species occurs within the forest.

Riparian Woodland. Riparian woodlands are critical wildlife habitats for several reasons, including their importance as a summer water resource, the variety of plants available for

cover and food, and the disproportionate loss of this vegetation type throughout this region.

The multi-layered canopy of the white alder riparian woodland provides a diversity of habitats for songbirds. Different species use the emergent canopy of the white alder as compared to the understory species.

Pest Species of Wildlife

Wild pigs (*Sus scrofa*) and wild turkeys have been observed in both Sugarloaf Ridge State Park and Hood Mountain Regional Park. Both of these species turn over the ground while rooting for food, which leaves the surface of the ground bare and can be a source of sediment during the winter. In addition, wild pigs and wild turkeys generate sediment when they wallow in streams and ponds. Wild pigs and wild turkeys also compete with native wildlife species for food and are likely to reduce the number of acorns available as food for native species, while also exposing the soil to invasive plants such as yellow-star thistle.

Special-status Species

The General Plan study area supports a number of special-status species, including plant species in serpentine habitats, steelhead in the watercourses, and other species on land. Map 7 depicts the California Natural Diversity Database (CNDDB) species results for the area.

Special-status species include plants and animals in the following categories:

- Species listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA)
- Species considered as candidates for listing as threatened or endangered under FESA or CESA
- Wildlife species identified by the California Department of Fish and Game (CDFG) as species of special concern (an administrative designation used to prevent these animals from becoming threatened or endangered by addressing issues of concern early enough to secure long-term viability of the species)
- Animals fully protected under the California Fish and Game Code
- Plants on the California Native Plant Society's (CNPS) List 1B (plants rare, threatened, or endangered in California and elsewhere) or List 2 (plants rare, threatened, or endangered in California but more common elsewhere)
- Also consider plants of local significance.

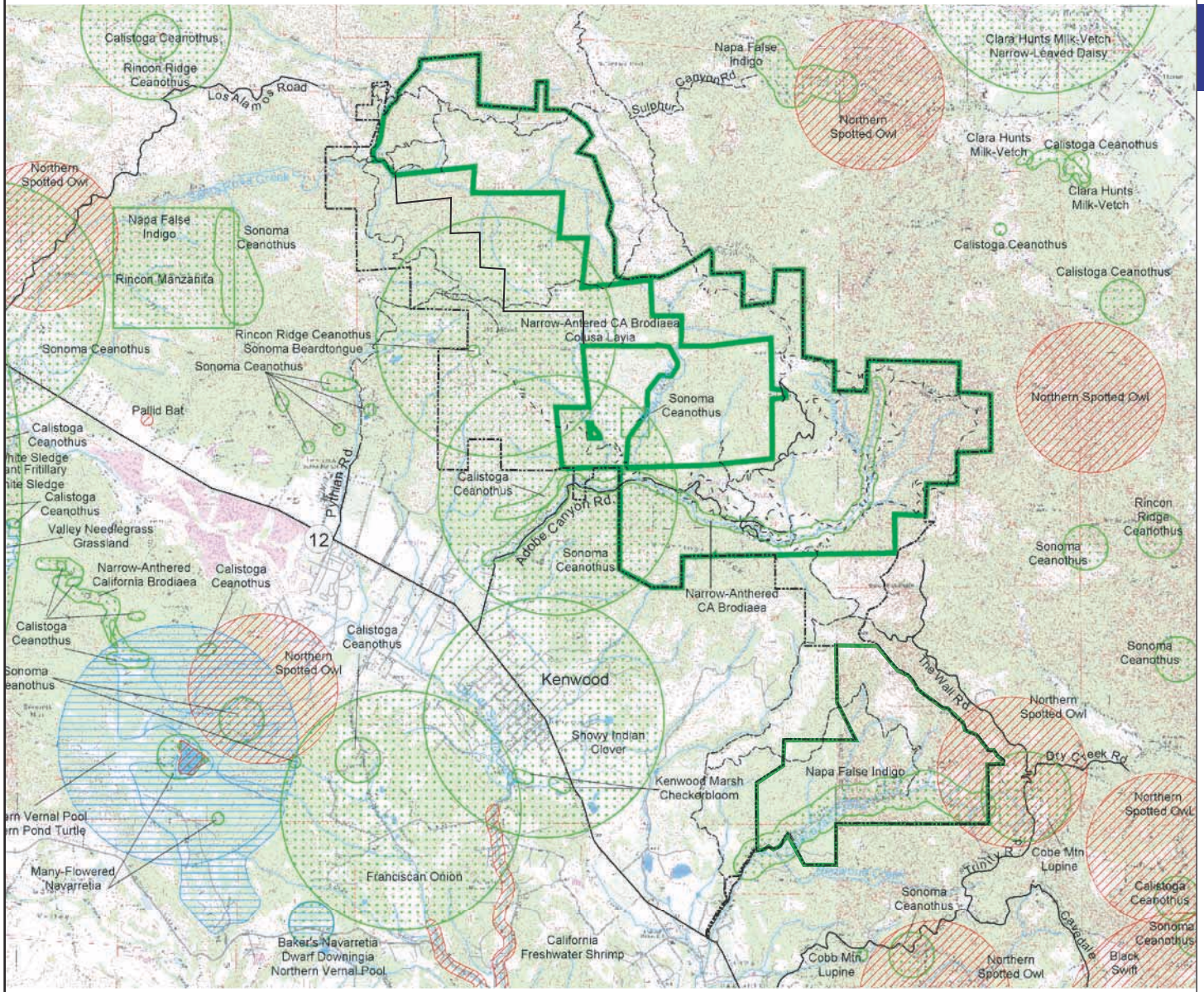
Table 2-2 lists the potentially occurring special-status species in the General Plan study area.

Map 7: California Natural Diversity Database

Sugarloaf Ridge State Park

CALIFORNIA NATURAL DIVERSITY DATABASE

MAP 7



Plant
Animal
Terrestrial Community

Basemap Features

Study Area Boundary
Sugarloaf Ridge State Park Boundary

Paved Access Roads to Sugarloaf Ridge
Other Paved Roads
Dirt Roads with Access to Sugarloaf Ridge
Other Dirt Roads
Trails with Sugarloaf Ridge State Park
Streams
Parcel Boundaries

N

4,000 0 4,000 Feet

Source: Sonoma Ecology Center 2002; CNDBB 2002

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Table 2-2: Special-Status Species in the Sugarloaf Ridge State Park General Plan Study Area

SPECIES	HABITAT	POTENTIAL FOR OCCURRENCE	CNPS	CDFG	USFWS
PLANTS					
FRANCISCAN ONION *Allium peninsulare var. frqanciscanum*	Rocky areas	May occur in rocky areas on site	1B	--	--
SONOMA ALOPECURIS *Alopecuris aequalis* var. *sonomensis*	Seasonally wet or ponded areas	Potentially present within wet or ponded areas	1B	--	FE
NAPA FALSE INDIGO *Amorpha californica* var. *napensis*	Woodland	Recorded from the Nunns Canyon area; potentially present in woodland and scrub vegetation of other areas	1B	--	--
SONOMA MANZANITA *Arctostaphylos canescens* ssp. *sonomensis*	Thin soils, chaparral, sometimes serpentine	Potentially present on thin soils and in chaparral	1B	--	--
RINCON MANZANITA *Arctostaphylos stanfordiana* ssp. *decumbens*	Thin soils, chaparral	Occurs nearby; potentially present on thin soils in chaparral	1B	--	--
CLARA HUNT'S MILK-VETCH *Astragalus clarianus*	Open woodland	Potentially present in grassy areas of open oak woodlands	1B	CT	FE
BIG-SCALE BALSAMROOT *Balsamorhiza macrolepis var. macrolepis*	Thin soils in grassland, scrub, or chaparral, often on serpentine	Potentially present in areas of shallow soils	1B	--	--
NARROW-ANTHERED CALIFORNIA BRODIAEA *Brodiaea california* ssp. *leptandra*	Grassland and chaparral areas	Recorded from Sugarloaf Ridge State Park	1B	--	--
WHITE SEDGE *Carex albida*	Wet and marhsy areas	Potentially present in wet areas	1B	SE	FE
RINCON RIDGE CEANOTHUS *Ceanothus confusus*	Chaparral areas	Occurs in Sugarloaf Ridge SP and in Hood Mountain Regional Park	1B	--	--
CALISTOGA CEANOTHUS *Ceanothus divergens*	Chaparral areas	Occurs in Sugarloaf Ridge State Park	1B	--	--
SONOMA CEANOTHUS *Ceanothus sonomensis*	Chaparral areas	Occurs in Sugarloaf Ridge State Park	1B	--	--
DWARF DOWNINGIA *Downingia pusilla*	Seasonally ponded areas, vernal pools	Potentially occurs in seasonally ponded areas	2	--	--
NARROW-LEAVED DAISY *Erigeron angustatus*	Dry rocky areas, shallow soil	Potentially occurs in areas of shallow soils and rocky areas	1B	--	--
FRAGRANT FRITILLARY *Fritillaria liliacea*	Relatively deep and moist soils, often serpentine	Potentially occurs in suitable habitat	1B	--	--

Table 2-2: Special-Status Species in the Sugarloaf Ridge State Park General Plan Study Area

SPECIES	HABITAT	POTENTIAL FOR OCCURRENCE	CNPS	CDFG	USFWS
TWO-CARPELLATE WESTERN FLAX *Hesperolinon bicarpellatum*	Serpentine chaparral	Potentially present in suitable habitat	1B	--	--
NAPA WESTERN FLAX *Hesperolinon sp nov.*	Chaparral, especially serpentine	Potentially present in chaparral	1B	--	--
COLUSA LAYIA *Layia septentrionalis*	Sandy or serpentine soils, grassland	Potentially present in suitable habitat	1B	--	--
LEGENERE *Legenere limosa*	Seasonally ponded areas	Potentially present in seasonally ponded areas	1B	--	--
JEPSON'S LINANTHUS *Linanthus jepsonii*	Chaparral, woodland	Potentially present in suitable areas	1B		
COBB MOUNTAIN LUPINE *Lupinus sericatus*	Gravelly soils, sometimes serpentine	Potentially present in suitable habitat	1B	--	--
MARIN COUNTY NAVARRETIA *Navarretia rosulata*	Dry rocky areas	Potentially present in suitable areas	1B	--	--
SONOMA BEARDTONGUE *Penstemon newberryi* var. *Snomensis*	Crevices in rock outcrops	Occurs on Hood Mountain Regional Park	1B	--	--
NORTH COAST SEMAPHORE GRASS *Pleuropogon hooveianus*	Seasonally ponded areas	Potentially present in seasonally ponded areas	1B	SC	--
MARIN CHECKERBLOOM *Sicalcea hickmanii* ssp. *viridis*	Serpentine chaparral	Habitat present, but occurrence unlikely because not observed	1B	--	--
MARSH CHECKERBLOOM *Sicalcea oregana* ssp. *hydrophila*	Seasonally wet areas, marsh	Potentially present in suitable habitat	1B	--	--
KENWOOD MARSH CHECKERBLOOM *Sidalcea oregana* ssp. *valida*	Seasonally wet areas, marsh	Occurs adjacent to the General Plan study area; potentially present in suitable habitat	1B	SE	FE
SHOWY INDIAN CLOVER *Trifolium amoenum*	Grassland	Occurred adjacent to the General Plan study area; potentially present in deeper soils of grassland areas	1B	--	--
INVERTEBRATES					
RICKSECKER'S WATER SCAVENGER BEETLE *Hydrochara ricksecker*i	Ponded water	Potentially occurs in seasonal or permanent ponds			
CALIFORNIA FRESHWATER SHRIMP *Syncaris pacifica*	Clear, flowing, perennial streams	Status unknown, but potentially present because known from Sonoma Creek	--	CSC	FT

Table 2-2: Special-Status Species in the Sugarloaf Ridge State Park General Plan Study Area

SPECIES	HABITAT	POTENTIAL FOR OCCURRENCE	CNPS	CDFG	USFWS
FISHES					
STEELHEAD *Oncorhynchus mykiss irideus*	Cold, well-aerated streams with gravel spawning substrate	Occurs in Santa Rosa and Sonoma Creeks on site	--	--	FT
NAVARRO ROACH *Lavinia symmetricus navarroensis*	Warm intermittent and cold aerated streams	Occurs in Mark West Creek; potentially present in the parks	--	CSC	--
AMPHIBIANS AND REPTILES					
CALIFORNIA RED-LEGGED FROG *Rana aurora draytonii*	Ponds or streams, often with dense vegetation	Potentially present in suitable habitat	--	CSC	FT
FOOTHILL YELLOW-LEGGED FROG *Rana boylei*	Generally restricted to shallow, flowing streams with some cobble-sized substrate	Potentially present in suitable habitat	--	CSC	--
WESTERN POND TURTLE *Clemmys marmorata*	Ponds, marshes, streams, and irrigation ditches	Observed in Sonoma Creek in Sugarloaf Ridge State Park	--	CSC	--
BIRDS					
SHARP-SHINNED HAWK *Accipiter striatus*	Woodlands, riparian areas	Potentially present in suitable habitat	--	CSC	--
COOPER'S HAWK *Accipiter cooperi*	Woodlands	Potentially present in suitable habitat	--	CSC	--
WESTERN YELLOW-BILLED CUCKOO *Coccyzus americanus occidentalis*	Extensive stands of mature and dense riparian woodlands	Not likely, although a pair was observed nearby in 1975	--	CSC	--
PEREGRINE FALCON *Falco peregrinus*	Cliffs for nesting, woodlands, grasslands, and wetlands	Suitable rocky areas onsite may be nesting habitat; not known from the General Plan study area, but known from a nearby area	--	CSC	--
LOGGERHEAD SHRIKE *Lanius ludovicianus*	Grasslands	Potentially present in suitable habitat	--	CSC	--
NORTHERN SPOTTED OWL *Strix occidentalis caurina*	Old-growth Douglas-fir, mixed evergreen forest, oak woodlands	Occurs nearby and is potentially present	--	CSC	FT

Table 2-2: Special-Status Species in the Sugarloaf Ridge State Park General Plan Study Area

SPECIES	HABITAT	POTENTIAL FOR OCCURRENCE	CNPS	CDFG	USFWS
MAMMALS					
PALLID BAT *Antrozous pallidus*	Caves, old buildings	Potentially occurs in suitable habitat	--	CSC	--
TOWNSEND'S WESTERN BIG-EARED BAT *Corynorhinus townsendii townsendii*	Caves, old buildings	Potentially occurs in suitable habitat	--	CSC	--

Notes: California Native Plant Society (CNPS)
1B – Plants rare, threatened, or endangered in California and elsewhere
2 – Plants rare, threatened, or endangered in California but more common elsewhere
California Department of Fish and Game (CDFG) CE – State–listed, Endangered
CSC – California Species of Special Concern CT – State–listed, Threatened
SC – Candidate species
U.S. Fish and Wildlife Service (USFWS) FE – Federal Endangered FC – Federal Candidate
FT – Federal Threatened PT – Proposed for listing as Threatened
Sources: CNDDB 2002; EDAW 2002

Cultural Resources

Ethnographic Setting

The study area lies near the intersection of lands that were controlled by three separate ethnographic groups at the time of European contact, the Wappo, Southern Pomo, and Coast Miwok. Each group may have shared some access to the region; however, the Sugarloaf Ridge State Park lies within the Wappo sphere of influence (Beard 1997).

The Wappo language included five dialects (Sawyer 1978), distributed across two major territorial divisions. The smaller territory encompassed lands on the southern edge of Clear Lake; the larger ranged from just north of Napa and Sonoma up to Cloverdale and Middletown. The Wappo were known to readily adopt words from other languages spoken in their vicinity and, interestingly, gave at least one village a name which is still in use, cho*nóma, meaning "abandoned camp" (Sawyer 1978). Another triblet, Wilikos, was described by Barret (1908) as being located at the head of Sonoma Creek.

The Wappo were generally considered to be a relatively peaceful group, culturally influenced by the groups surrounding them. The Wappo also struggled against the Spanish. Some were drafted for labor; others went to the Sonoma Mission between 1823 and 1834. By 1850, it was estimated that no more than 500 were left in the Napa Valley (Yount 1966). In the 1910 census of the area, 73 individuals claimed Wappo membership (Kroeber 1925).

The Wappo lived in villages usually located on a creek or other water source. Villages included one or two sweathouses as well as houses of varying size. Village chiefs might be elected or appointed based on the organization of the individual village. Some villages even

had multiple chiefs, each with different spheres of influence (Sawyer 1978). Seasonal travel to Clear Lake, the Russian River, the Pacific coast, and Napa Glass Mountain was common.

Background Research

For purposes of cultural resources, the various properties (i.e., Sugarloaf Ridge State Park, Thatcher property, Stern property, Freeman property, BLM property, and Hood Mountain Regional Park) were examined as a whole and are referenced as the General Plan study area. District archaeologist Breck Parkman provided an overview of Sugarloaf Ridge State Park archaeology, historic documentation, and copies of District site record forms for most of the resources within the Park. Parkman also noted that surveys had been conducted by non-Department archaeologists, and records from those efforts might be in private hands. Cultural resources within Sugarloaf Ridge State Park have been documented since the 1920s, by both professional and educational archaeologists, and in varying formats as methods changed within the archaeological framework.

An information request was submitted to the Northwest Information Center (NWIC) for the project area as a whole. The purpose of the NWIC search was to determine whether there were previously recorded historic resources or if archaeological surveys had been performed within or in the vicinity of the project area. The NWIC had records of nine archaeological surveys that had been conducted within the project area, in addition to those completed by Sugarloaf Ridge State Park staff. These survey areas have included much of Sugarloaf Ridge State Park and Hood Mountain Regional Park. A map depicting previous archaeological survey coverage is shown as Map 8.

Also on file at the NWIC were site record forms pertaining to resources identified during those surveys, as well as several records for sites within Sugarloaf Ridge State Park. The NWIC search included examination of historic resources such as:

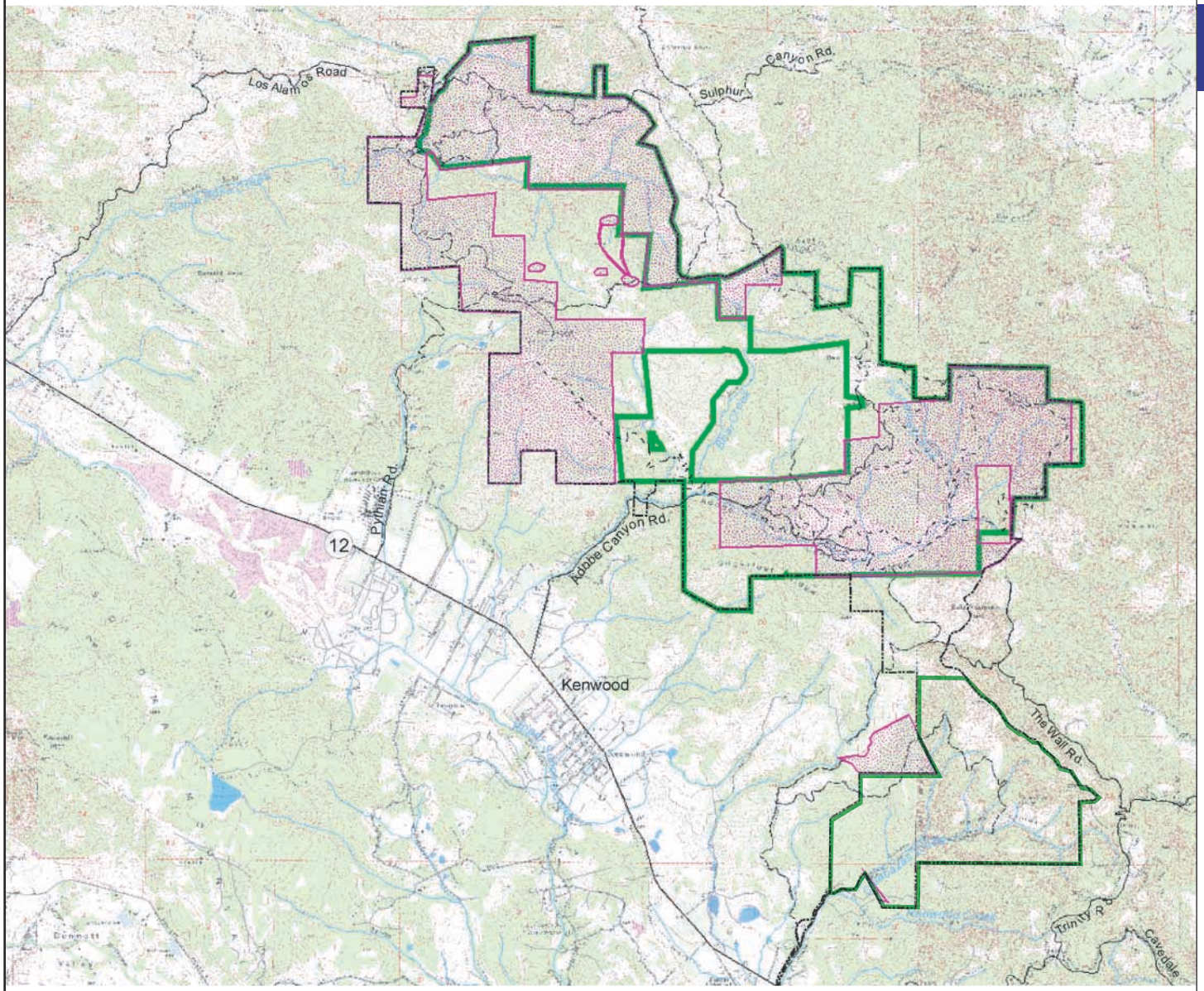
- State Historic Preservation Office Historic Property Directory
- California Inventory (1996)
- California Historic Landmarks (1996)
- National Register of Historic Places (1996 and 2000)
- California Points of Historical Interest (1992 and updates)
- Thompson and West Historical Atlas (1878)
- U.S. Geological Survey Santa Rosa Quadrangle (1916)
- Illustrated Atlas of Sonoma County, California (1898)
- General Land Office Plat Map, Township 7 North Range 6 West (1889)
- General Land Office Plat Map, Township 7 North Range 6 West (1870)
- General Land Office Plat Map, Township 6 North Range 6 West (1871)
- A.B. Bowers Map of Sonoma County, California (1867)

Map 8: Previous Archeological Survey Coverage

Sugarloaf Ridge State Park

PREVIOUS ARCHEOLOGICAL SURVEY COVERAGE

MAP 8



Survey Area

Basemap Features

- Study Area
- Sugarloaf Ridge State Park Boundary
- Paved Access Roads to Sugarloaf Ridge
- Other Paved Roads
- Dirt Roads with Access to Sugarloaf Ridge
- Other Dirt Roads
- Trails within Sugarloaf Ridge State Park
- Streams
- Parcel Boundaries

N

4,000 0 4,000 Feet

Source: Sonoma Ecology Center 2002; EDAW, Inc. 2002; Charlane Gross 2002

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EDAW

- Thomas H. Thompson and Company Historical Atlas Map of Sonoma County, California (1877)

The historic maps and records cited above depict a number of roads and buildings, and the names of many of the early property owners. These sources also provide a list of extant historic structures within the survey area that have been listed with the State Historic Preservation Office.

Based on conversations with the Department archaeologist and the NWIC, it was clear that other records of surveys might be in the hands of private individuals who had conducted archaeological surveys within Sugarloaf Ridge State Park, either as volunteers or for academic research. Site record forms and background research were also collected from these sources. During the course of information gathering, it became apparent that 10 to 20 cultural resource sites identified within the project area have not been mapped, and hence their locations remain unknown. As new sites are found, an effort should be made to match them with these unmapped loci, where appropriate.

Archaeology of the Project Area

Over 75 cultural resources have been identified within the General Plan study area, including homesteads, mining-associated sites, hunting cabins, charcoal production areas, roads, vineyards, prehistoric lithic scatters, prehistoric village sites, and isolated artifacts. In Appendix H, held under separate cover for confidentiality, Table H-1 identifies the cultural resources, and Map H-1 depicts their locations. Historic use of the project area appears to be well understood. Oral histories from some of the pioneering families detail living conditions within the study area and provide information regarding construction dates, periods of settlement, and abandonment and land usage. Historic maps and deeds further round out the historic picture. One site, SR 15, appears to represent the remnants of a 1850s vineyard, one of the earliest in the area. The site is also notable for use of vertical plowing up the hillside, rather than contour plowing, which was a later innovation designed to control soil erosion. The vertical furrows are clearly visible today.

Based on the density of sites along waterways, lower-lying landforms, and even ridgetops and hillsides, the area was fairly heavily utilized during prehistoric periods. Heaviest use and major sites appear concentrated along level ground near waterways, particularly Sonoma Creek and its tributaries. Nearby springs provided other incentives for site location. Conditions within the project area vary from more open valley floors to steep, dense, brushy slopes and ridges. Sites have been noted in every terrain condition, which indicates that by clearing the more impenetrable areas, even areas that have been previously surveyed could yield additional cultural resources.

Cultural resources within Sugarloaf Ridge State Park have been subjected to a number of impacts that have caused damage or destruction. Chiefly, erosion along Sonoma Creek and its tributaries has washed away site components and apparently caused the total destruction of CA-SON-1113. Other factors, such as wild pig rooting, foot and equestrian traffic, looting, and construction or maintenance of park facilities have caused cumulative damage to some sites. Ongoing damage has led to the formation of an archaeological

evaluation program that includes many of the larger sites in the Sonoma Creek drainage. This program has involved intensive surveys, auger probes, unit excavations, and artifact collection. Obsidian hydration has been performed on flakes and tools from a number of these sites, resulting in known periods of occupation.

The general geographic location of the project area, between the Napa Glass Mountain and Annadel obsidian sources, may have played a part in its utilization. In fact, the proportions of obsidian types on sites and their relative dates may demonstrate waxing or waning tribal spheres of influence along Wappo/Pomo/Miwok boundaries. The ethnographic village of Wilikos, reportedly located near the headwaters of Sonoma Creek, may be one of the sites that has been identified. In spite of the imposing terrain of the study area, it clearly has been the focus of significant prehistoric and historic development. The potential for retrieving important data from known and as-yet-undiscovered resources is significant.

Prehistoric Setting

In the early 1970s, Fredrickson (1973; 1974) proposed a sequence of cultural manifestations or patterns for the central districts of the North Coast Range, placing them within a framework of cultural periods he believed were applicable to California as a whole. A summary of Fredrickson's (1973; 1974) temporal periods with descriptions of the associated cultural patterns identified for the region is provided in Appendix C. The summaries incorporate recent and interpretive revisions that are summarized from the recent work of White and Frederickson (1992).

Historic Setting

Sugarloaf Ridge State Park

The region in and around Sugarloaf Ridge was sparsely populated and little-used historically due to steep hills, narrow canyons, and difficulty of access (Lortie 1979). The ridge itself was never included in any of the Mexican land grants, but rather separated George C. Yount's Camus Rancho and Juan Wilson's Rancho Los Guilicos (Jones 1977). American and immigrant settlement in the area began in the mid-19th century, with some homestead patents or claims being filed in the 1870s. Other historic uses of the area included marginal agriculture, charcoal production and, in later years, recreation.

The Luttrell family settled in the area in the 1860s, building a residence and outbuildings near the current ranger residence. None of the structures stand today. The Luttrells ran a small family farm, raising stock and growing walnuts, subsistence crops, and grapes. Evidence of the Luttrells vineyard can still be seen as vertical furrows on a slope northwest of the ranger's residence (Jones 1977). The Luttrells lost the property in 1893. It then passed to Henry Schwartz, who sold it to John Warboys in 1910, who in turn sold it to W.D. Reynolds. Reynolds built a ranch complex and the road through Adobe Canyon. Only a barn from the Reynolds complex remains today. In 1920, the property was sold to the Sonoma State Home, a state-run mental hospital (Lortie 1979). Inmates of the hospital may have been employed in constructing a dam to divert water from Sonoma Creek to Glen Ellen. Boy Scouts also used the property, and a fireplace, building foundation, patio

area, and pond remain. After World War II, the property was leased to a dairy farmer. The property was sold again in the 1960s, and in 1971 was sold to the State of California.

Charcoal production dominated use of the area around the turn of the century. Wood was cut on the ridges and hillsides and hauled by horse and wagon to flats near the creek, where it was carefully stacked and slowly burned. The resulting charcoal would then be loaded into wagons and taken to rail stations for transport to markets, primarily in San Francisco (Jones 1977).

The Warboys acquired a parcel to the east, near the county line. They built a hunting cabin on the property ca. 1910 which the state demolished in the 1970s. The Bear Creek Ranch property, which straddled the Sonoma/Napa county line near the northeast corner of the park, was also used for small-scale farming and ranching as well as for hunting activities. A butchering shed with a 1942 date still stands. The ranch house burned in 1967 though fireplace and foundation remains still exist (Lortie 1979).

Ray and Bertha Hurd and their 10 children homesteaded 160 acres near the headwaters of Bear Creek between 1914 and 1930. The Hurds built two cabins, a house, a woodshed, a barn, and a schoolhouse, all located on their ranch in the area that is now the end of the High Ridge Trail. During that period, there were other families living up in the high country – probably a total of 35 to 40 people. The red barn and a few remnants of the house foundation are all that are left of the former Hurd homestead.

Nunns Canyon

Nunns Canyon likewise was settled relatively early. It was part of the Rancho Los Guilicos, a Mexican land grant given to John and Ramona Wilson in 1837. It changed hands in 1850, and again in 1878 when it was purchased by John Drummond for the production of wine and brandy. Other portions of the property were owned by homesteaders, including the Johnson and Nun families. The various landowners practiced small-scale agriculture or raised animals, including sheep, cattle, and turkeys.

Aesthetic Resources

Visual Setting

Sugarloaf Ridge State Park sits atop the Mayacamas Ridge between Sonoma and Napa Counties. Bald Mountain and nearby Hood Mountain are the highest points along this portion of the ridge, and it is their steep rocky slopes that form the eastern boundary of the picturesque Sonoma Valley, or the "Valley of the Moon." These peaks and the mountains within Sugarloaf Ridge State Park also form the division between the Sonoma Creek and Santa Rosa Creek watersheds and are the focal point of the two valleys. To the west, in the upper reaches of Santa Rosa Creek, vineyards in the valley floor lead up to the nearby suburban interface of the Oakmont subdivision, the easternmost portion of the city of Santa Rosa. One can see the peaks in Sugarloaf Ridge State Park and Hood Mountain Regional Park from Santa Rosa and as far west as Sebastopol.

To the south lies the Sonoma Valley, full of vineyards and oak chaparral landscapes. The wooded hills and landscape cover the Mayacamas Ridge and form the backdrop to the vineyards in the valley floor. On the other side of the valley are the rounded, tree-covered hills of Annadel State Park; Jack London State Park is located just below the broad, rounded ridge of Sonoma Mountain. State Route 12 in this area is a designated scenic highway, where visitors travel to see the wine country. The vineyards form most of the foreground views. The dark and olive greens of the native vegetation in Sugarloaf ridge and the surrounding Mayacamas Ridge form the backdrop to one side of the valley's famous vineyards. In this backdrop setting, past the first rise of Sugarloaf ridge and into the hills of the Mayacamas Ridge, lies Sugarloaf Ridge State Park. Within steeply vegetated hills and narrow canyons, it is a visually wild place and scenically quite different from the cultivated landscape of Sonoma Valley. This wild scenery forms the backdrop to agriculture and growing urbanization, which makes Sugarloaf Ridge State Park such an important place.

Views from the Park

Most visitors to the park now drive up Adobe Canyon Road, the most direct access to the park facilities. The vineyards quickly fade into the background as the valley narrows. Rows of mailboxes and driveways to rural residences peal off in either direction. The road narrows, the tree canopy of redwoods and big-leaf maples closes overhead, and the entrance sign reveals itself around an unassuming curve. As mailboxes and houses cease, the road begins its winding ascent up from the redwoods into the main portion of the park. Along the way, dirt pullouts and small trail markers suggest trails. Knowledgeable people talk about past hikes to the mountain tops where they could see everything from Pyramid Peak, 100 miles to the east in the Sierras to the city of San Francisco 60 miles to the south. Towards the end of the drive, the road levels out and the vegetation opens into oak chaparral where deer can be seen grazing. The developed portion of the park is set in this chaparral landscape, with visitor facilities generally in amongst the oak trees. For many, this is the destination, a place to camp or perhaps ride a horse, or a chance to look through a telescope to the stars. For others, it is the beginning, a place to leave the car and begin a hike. For those individuals, the visitor facilities fade away and views of wildlands take over. On the way up to Bald Mountain or the Bushy Peaks Ridgeline Trail, hikers pass through open meadows and climb up to see panoramic views of distant ridges. Only one small portion of the view to the south currently contains a vineyard. Otherwise, the views are of wild and rugged land, diverse vegetation, scenic vistas, lots of wildlife for the observant, and not many people.

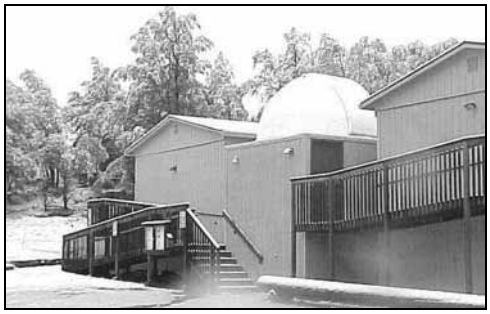
Views of the Stars

The high peaks that surround the observatory, located in upper Adobe Canyon, shield the ambient nighttime light from nearby Santa Rosa. The dark nighttime sky in Sugarloaf Ridge State Park is an important quality for stargazing. On a clear night, the Milky Way galaxy appears to be within arm's reach at Sugarloaf Ridge State Park.

Aesthetics of the Visitor-Serving Facilities

Upon entering the park, there is a beautiful redwood grove and an understated dirt parking pullout and trailhead for the Goodspeed Trail up to Hood Mountain. Further into the visitor-serving portion of the park, the facilities have the look of temporary structures that

have become permanent. At the entry kiosk, where the visitor pays to enter, there are metal cargo containers full of wood. These containers have roll-up style garage doors and are tucked in among the trees. The visitor center is the nicest building in the park, small and set into the woods, but is fronted with a bright aqua-colored portable restroom surrounded by parking restriction signs. The day-use parking lot, visible from the visitor center, sits in the center of a meadow, built high on a pad without landscaping to screen the view. Further up the road is a modest ranger residence. At the foot of the driveway, and at the entrance to the stable parking area, is a storage area for heavy equipment. At the stable parking area, an extraordinary view of the upper meadow is interrupted by an 8-foot "no parking" sign. Around the corner, partially behind a nice stand of oaks, is the observatory. Because of sensitive resources in the area and because the observatory was originally constructed as a temporary building, there have been no grading or landscaping to make it fit into the setting. Most of the facilities within the park are not in keeping with the extraordinary visual character of the natural setting.



The Robert Ferguson Observatory after a snowstorm December 2002

Restrooms and dumpsters in the family campground

Recreational Resources

Local Recreation Destinations Near the Study Area

The Sonoma Valley is a recreation destination among wine enthusiasts worldwide. People come to sample the Sonoma Valley wines nearly as often as they visit the nearby Napa Valley. While the wine tasters that come for the day may not get out of their cars except to visit wineries, some wine country visitors stay overnight in hotels or bed-and-breakfast establishments. Of the overnight visitors, some are interested in outdoor recreation and the sights offered by the parks in Sonoma Valley. Many of these outdoor recreation destinations are not well publicized and only the knowledgeable venture beyond the valley floors.

Across the Sonoma Valley from Sugarloaf Ridge State Park are Annadel State Park and Jack London State Historic Park. Annadel abuts the city limits of Santa Rosa and provides a newly updated trail system for hikers, bikers, and equestrians. Also adjacent to Annadel and the city of Santa Rosa is Spring Lake Regional Park, which provides camping, swimming, and a variety of children's activities, including a train ride. The trails are particularly heavily used by nearby residents and regional visitors, to the point that some of the resources are being impacted by overuse. A trail connection was proposed in the *Draft Outdoor Recreation Plan* and has been supported by rangers and others. The connection proposed

between Annadel and Sugarloaf Ridge State Parks would be via a regional trail on or along the alignment of Lawndale Road.

Jack London State Historic Park specializes in historic interpretation of its famous one-time resident and author. The park has recently been enlarged through partial acquisition of the state-owned Developmental Center. This enlargement places additional habitat under the protection of the Department to help support a biological corridor spanning the Sonoma Valley.

Recreation Destinations Within the Study Area

Within the General Plan study area, public recreation is available at both Sugarloaf Ridge State Park, operated by the Department, and Hood Mountain Regional Park, operated by SCRP. These entities cooperate at different levels in an effort to provide recreation in the collective Mayacamas parklands. Activities within the parklands include hiking, camping, mountain biking, rock climbing, equestrian use, picnicking, wildlife, wildflower observation, and astronomical viewing at the Robert Ferguson Observatory.

Visitors to Sugarloaf Ridge State Park enjoy hiking, mountain biking, and horseback riding on the miles of trails that wind through the hillside wildlands. After the winter rains, there is a picturesque waterfall along Sonoma Creek below the campground. Many visitors come to the park in the spring and early summer to view the colorful wildflowers that grow in abundance in the meadows. Wildlife and bird watching is also a popular pastime. Coyotes, deer, gray foxes, and the occasional bobcat can be seen within the park boundaries.

Fifty family campsites and one group camp are provided in the Sonoma Creek valley in the Adobe Canyon Management Zone of Sugarloaf Ridge State Park. The group camp, which can accommodate up to 50 people and includes a small corral for horses, provides one of the only equestrian camps in the region. Horseback riding is a major recreation activity, and visitors to Sugarloaf Ridge State Park have access to guided horseback riding activities offered by a private concessionaire.

Sugarloaf Ridge State Park also houses one of the largest public viewing telescopes in the region, a 40-inch telescope at the Robert Ferguson Observatory that can be rented, along with the group campground, for private parties, through the Valley of the Moon Observatory Association.

Rock climbing has become popular in Sugarloaf Ridge State Park over the past few years. Climbers practice on boulders located to the south of the campground area. Because of the sport's popularity, climbers are causing some erosion problems at the rock outcroppings. Climbers have also been discovered trespassing on private property to the south of the park.

Recreational Trails

Over 25 miles of trails traverse through the wildlands of Sugarloaf Ridge State Park. An additional 10 miles of trails are provided in nearby Hood Mountain Regional Park. The

trails lead to easily accessible ridgelines, with countless sweeping views that look over and beyond the Napa and Sonoma Valleys.

The locations of existing trails, within Adobe Canyon are shown on Map 9 (included as part of the following discussion on Facilities), and trail characteristics are identified in Table 2-3. GIS trail information was not made available for the Santa Rosa Creek Watershed Management Zone and Hood Mountain Regional Park trails, and thus the table provides limited information for these trails.

Most of the state park trails generally radiate out from the main camp area accessed from Adobe Canyon Road and include both single-track trails and fire roads used as multipurpose trails. Several multipurpose trails are also located in the northern portion of the Santa Rosa Creek Watershed Management Zone. However, there is not a direct trail connection between this area and the other Sugarloaf Ridge State Park trails in Adobe Canyon. There are few fire roads or trails in the southern half of the Santa Rosa Creek Watershed Management Zone. Although it was originally meant to be included in the acquisition, the narrow land connecting the Santa Rosa Creek Watershed Management Zone and the Adobe Canyon Management Zone cannot accommodate a trail link between the two areas due to the steep slopes. Additional lands would need to be acquired, either through a trail easement or fee ownership, to allow a trail connection between the two areas.

Hood Mountain Regional Park provides trail connections to the Adobe Canyon Management Zone of Sugarloaf Ridge State Park, but its historically frequent closures have often restricted movement between the parks. Additionally, there are some issues with the roadways as trail connections between Hood Mountain and the Santa Rosa Creek Watershed Management Zone. The Los Alamos Road extension passes through a narrow sliver of private property (the Rasmussen Property) between the two parks, which restricts a public access connection on this fairly steep roadway. As a result, the only way for the public to access the Santa Rosa Creek Watershed Management Zone is to start at the northern entrance parking lot, hike south on the Santa Rosa Creek Trail within Hood Mountain Regional Park, and then cross Santa Rosa Creek into Sugarloaf Ridge State Park following the fire road. The Santa Rosa Creek crossing does not have a bridge and so access into the Santa Rosa Creek Watershed Management Zone is also restricted during periods of high water.

In general, the fire roads in Sugarloaf Ridge State Park may be used for hiking, biking, and horseback riding year-round. Mountain bikes and horses are restricted on some of the single-track trails. Further restrictions and seasonal closures may also occur during wet weather to reduce impacts on the trails. As trails are restored, rehabilitated, re-engineered and/or re-routed to more proper alignments to reduce environmental impacts, trail use designations may change. These trails use designation changes may be necessary to link Sugarloaf Ridge State Park with adjacent landbases where shared use trails are allowed. Trails designed and constructed on proper alignmnents are far more sustainable than the current single-use designation trails that are poorly constructed and overly steep. It is anticipated that shared use trails would include all types of typical park users which are mountain bikes, equestrians and hikers.

Both the fire roads and single-track trails at Sugarloaf Ridge State Park are generally in poor condition due to lack of maintenance and less-reliable construction techniques when built. Some of the steeper sections of the trails have erosion problems, resulting in stream sedimentation. The newest trail in the park, the Brushy Peaks Trail constructed in 1992, is in only fair condition.

Table 2-3: Park Trails in the Sugarloaf Ridge State Park General Plan Study Area

TRAIL NAME	TYPE	SURFACE TYPE	TOTAL DISTANCE (MILES)	GRADIENT
Bald Mountain Trail	Fire Road	Gravel	2.30	16-30%
Brushy Peaks Trail	Single Track	Rocky & Dirt	3.10	0-15% and 16-30%
Canyon Trail	Single Track	Rocky & Dirt	0.60	0-15%
Creekside Nature Trail	Single Track	Gravel, Rocky & Dirt	0.75	0-15%
Goodspeed Trail	Single Track	Rocky & Dirt	2.10 [a]	Mostly 16-30%
Gray Pine Trail	Fire Road	Dirt & Gravel	2.65	Ranges from 0-45%
Headwaters Trail	Single Track	Rocky	0.50	16-30%
High Ridge Trail	Fire Road	Gravel	1.60	16-30%
Hillside Trail	Fire Road	Gravel	1.10	0-15% and 16-30%
Lower Bald Mountain Trail	Single Track	Dirt	1.00	0-15%, 16-30%
Meadow Trail	Fire Road	Gravel	0.80	0-15%
Pony Gate Trail	Single Track	Rocky & Dirt	0.90	0-15%
Red Mountain Trail	Single Track	Dirt	1.05	0-15% and 16-30%
Stern Trail	Service Road	Gravel	0.50	unknown
Vista Trail	Single Track	Dirt	1.50	0-15%
SANTA ROSA CREEK WATERSHED MANAGEMENT ZONE				
Headwaters Trail	Fire Road	NA	1.30	NA
Grandmother Oak Trail	Single Track	NA	0.30	NA
Maple Glen Trail	Fire Road	NA	2.00	NA
Pygmy Owl Trail	Fire Road	NA	NA	NA
Quercus Trail	Fire Road	NA	0.70	NA
Santa Rosa Creek Trail	Fire Road	NA	0.70 [b]	NA
Wildcat Creek Trail	Fire Road	NA	0.50	NA
HOOD MOUNTAIN REGIONAL PARK				
Alder Glen Trail	Single Track	NA	0.20	NA
Cypress Trail	Single Track	NA	0.30	NA
Gunsight Rock Trail	Single Track	NA	0.40	NA
Hood Mountain Trail	Fire Road	NA	4.90	NA
Nattkemper-Goodspeed Trail	Single Track	NA	1.20 [c]	NA
Santa Rosa Creek Trail	Fire Road	NA	0.40 [d]	NA
Summit Trail	Single Track	NA	2.50	NA

Notes:

NA = not available from General Plan GIS database

[a] Length of trail within Sugarloaf Ridge State Park only. Total length of the Nattkemper-Goodspeed Trail is 3.3 miles.

[b] Length of trail in Sugarloaf Ridge State Park only. Total length of the Santa Rosa Creek Trail is 1.1 miles.

[c] Length of trail within Hood Mountain Regional Park only. Total length of the Nattkemper-Goodspeed Trail is 3.3 miles.

[d] Length of trail within Hood Mountain Regional Park only. Total length of the Santa Rosa Creek Trail is 1.1 miles.

Both the Hillside and Meadow Trails were re-engineered in 2001 to reduce water concentrations and the resulting siltation in Sonoma Creek. This work fundamentally changes the hydrology of the trail or roadbed by sheeting water across the road surface instead of allowing it to travel down the roadbed. Other improvement have been completed to create sustainable road surfaces.

Some of the fire roads were previously maintained by the California Department of Forestry and Fire (CDF) and Pacific Gas and Electric Company (PG&E). CDF maintained the High Ridge Trail and PG&E maintained Grey Pine, Brushy Peaks, and part of Hillside Trail, where an access easement is in place. Both CDF and PG&E ceased maintaining the roads in approximately 1996, because their methods for maintaining the roads did not meet state park standards and the District's obligation to reduce sedimentation into the creeks. An alternative plan for maintaining these roads and trails has been to topographically re-engineer the roads for both increased sustainability and improvements to water quality. These improvements, although initially expensive to implement, should result in a substantial decrease in ongoing maintenance costs.

Interpretive and Educational Resources

A variety of interpretive resources are provided within Sugarloaf Ridge State Park. The interpretive materials include brochures, interpretive signs, nature walks, campfire programs, and special nighttime viewing sessions in the observatory. Topics include the natural resources of the park, the settlement history in the park area, views from Bald Mountain, and astronomical topics, primarily associated with activities in the observatory. No specific theme is identified or carried out through the various interpretive displays and programs.

The *park brochure* distributed to visitors at the entrance kiosk for one dollar offers a brief introduction to the park. The brochure provides a trail map and general information about the recreational resources of the park, including camping and picnicking, and the Robert Ferguson Observatory. The brochure also provides information about some of the vegetation, natural topography, views from the ridgetops, and a summary of the settlement history of the area, from the Wappo Indian village to early American settlers.

The *Visitor Center* sells additional guidebooks about the natural and cultural history of the park. Displays inside the building provide information about plant communities and wildlife in the park, including an interactive display describing the food chain. A small diorama of the Mayacamas Ridge gives visitor's a sense of the extent of the park and surrounding topography. Valley of the Moon Natural History Association volunteers staff the visitor center, and rangers and volunteer docents are often available to answer visitor's questions. *Information boards* outside of the visitor center and at the parking lot near the Goodspeed Trail provide maps of the park and a monthly notice of park activities, including scheduled nature walks and observatory events.

The *Creekside Nature Trail* provides an opportunity for visitors to see and learn about the park's plants and animals on a self-guided walk. Numbered posts along the trail correspond to vegetation and cultural resource information provided in an insert in the park brochure.

The trail is a three-quarter-mile walk from the picnic area near the day-use parking lot, and ends at the family campground.

Local nonprofit and volunteer organizations, including Acorn Soupe, LandPaths, and the Sierra Club, have conducted *guided ecological tours and hikes* within Sugarloaf Ridge State Park. Acorn Soupe organizes an educational program and nature walk for 4th and 5th grade classes approximately 12 times per year. Guided walks tailored for people interested in restoration work, including creek cleanup, are also sponsored by Acorn Soupe. The guided walks and volunteer restoration work occurs approximately six times per year.

District Ecological Resource specialists are occasionally asked to sponsor tours of Sugarloaf Ridge State Park and discuss ecological issues for interested college classes. Valley of the Moon Natural History Association volunteers also take groups on hikes through the park. Last year, special moonlight hikes and a 4th of July hike to see the fireworks from the ridgetop were especially popular, generating 100 to 200 participants each.

The District sponsors *volunteer trail days* from May through September, when maintenance staff train, provide tools, and work with volunteers to repair and clear trails. Some volunteer groups or organizations "adopt" sections of trails.

Junior ranger programs are offered during the summer at the campfire center. *Campfire program* topics vary according to the specialties and interests of the staff presenting them. Many are traditional slide shows that interpret local natural or cultural history. The campfire programs also coordinate with observatory viewing programs, and observatory volunteers may provide an early introduction to what will later be visible in the night sky. Fewer interpretive programs are offered during the off-season.

Junior ranger programs for children 7 to 12 years old during the summer. The Junior Ranger Program is a statewide program that takes place over several days, with different topics presented at each hour-long session. Geology, Ecology, history, safety, plants, and wildlife are among the subjects likely to be explored. Awards such as pins, certificates, and patches are given to participants as they progress through the program. A child may begin at one park and then continue at a later date in some other location. The Junior Ranger Program is offered free of charge to visitors who have already paid park entrance or camping fees. Sugarloaf Ridge State Park did not offer the Junior Ranger program activities in 2001 due to a staffing shortage; however, it has participated in past years.

Bat houses sit atop tall poles at the campfire center. Although there are no signs describing the characteristics of the bats that live there, rangers inform visitors of their existence and use.

Interpretive signs identifying specific viewpoints are located on Bald Mountain, the highest point in the park. Bald Mountain provides commanding views of the surrounding area, where visitors can overlook Napa Valley, see portions of the San Francisco Bay Area, and even glimpse the Sierra Nevada mountains on a clear day.

The *Robert Ferguson Observatory* is a unique educational resource within Sugarloaf Ridge State Park. The observatory houses a telescope with a 40-inch-diameter mirror, a smaller telescope with a digital camera, and various portable telescopes set up near the observatory structure. The telescopes and facilities at the observatory are operated and maintained by the astronomical concessionaire, the Valley of the Moon Observatory Association. The association hosts lectures and public viewings during celestial events, where docents are available to answer questions and discuss astronomy, telescopes, cosmology, and other topics.

In an innovative way of linking the observatory with the other recreational resources at Sugarloaf Ridge State Park, the Valley of the Moon Observatory Association created *PlanetWalk*, a scale model of the solar system designed to fit within the boundaries of the park. Although most people know that the planets orbit the sun, it is difficult to visualize just how small the planets are, compared to the immensity of the sun, and it is equally difficult to imagine the vast empty spaces between the planets. PlanetWalk is designed to give a firsthand experience of these spatial relationships.

PlanetWalk begins at the group camp near the observatory with a large sign representing the sun and follows Meadow Trail to Brushy Peaks Trail for a 4.5-mile round-trip journey to the orbit of Pluto. Along the way, hikers pass nine trail signs representing each of the nine planets in the solar system. Each sign is placed at a distance from the PlanetWalk sun proportional to the actual distance from the sun of the planet it represents. Each planet sign has a representation of the planet itself, drawn to the PlanetWalk scale.

2.2.3 EXISTING FACILITIES

This section describes the existing buildings and recreation facilities in Sugarloaf Ridge State Park. A discussion of the park's utilities and circulation is provided following this section.

Buildings

Visitor and operations facilities in Sugarloaf Ridge State Park are primarily concentrated in the low-lying land along Sonoma Creek in the Adobe Canyon Management Zone and are accessed from Adobe Canyon Road (Map 9 and Table 2-4). Within the main visitor area, the facilities are distributed in four subareas: the visitor center/entrance area, the campground/day-use area, the equestrian center/service area, and the observatory/group camp area. Other visitor facilities outside of the main campground area include Camp Butler, a former Boy Scout camp now used as an overlook and picnic site, and benches and interpretive sites on top of Bald Mountain. Currently, there are no buildings in the Santa

Rosa Creek Watershed or Nunns Canyon Management Zones. Hikers use the Hood Mountain Regional Park parking lot and restroom facilities at the northern entrance on Los Alamos Road.

The remnants of two previous homesteads can be found in the Bear Creek Watershed Management Zone of Sugarloaf Ridge State Park, although the facilities are currently in poor condition and are not used for recreational purposes. Harr Ranch is a dilapidated

Table 2-4: Visitor and Operations Facilities in Sugarloaf Ridge State Park

MAP LOCATION NUMBER	DESCRIPTION	NUMBER OF ITEMS	YEAR CONSTRUCTED	CONDITION
VISITOR CENTER/ENTRANCE STATION AREA				
1	Entrance Station/Kiosk	1	1977	Good
2	Visitor Center	1	1987	Fair
3	Visitor Center Parking	6 spaces	1969	Good
4	Water Pump Substation	1	1989	Fair
5	Water Well	1	1989	Good
6	Footbridge	1	1988	Fair
CAMPGROUND/DAY-USE AREA				
7	Family Campground (50 campsites)	50	1968	Fair
8	Camp Host Site	1	1996	Fair
9	Campfire Center	1	1977	Good
10	Day-Use Areas	3	1977 – 1995	Good
11	Day-Use Parking	34 spaces	1992	Good
12	Outdoor Toilets	8	1967 – 1982	Fair
13	Low Water Bridge	1	1969	Fair
14	Footbridge (crosses creek)	1	1988	Good
GROUP CAMP/OBSERVATORY AREA				
15	Group Campsite	1	1970	Fair
16	Observatory	1	1997	Good
17	Horse Corral	1	1994	Fair
18	Group Camp Parking Lot	1	1970	Fair
19	Outdoor Toilets	2	1982	Poor
SERVICE AREA/HORSE BARN				
20	Horse Concession Barn	1	1930s	Fair
21	Horse Corral	1	1975	Fair
22	Office Building/Maintenance Shop	1	1988	Fair
23	Mobile Home (Employee Housing)	1	1977	Fair
24	Mobile Home Site (pad only)	1	1978	NA
25	Greenhouse (not yet constructed)		2003	NA
26	Parking Lot/Service Area	1	1968	Fair
27	Outdoor Toilet	1	1982	Fair
28	Outdoor Fire Hose Cabinets	1	1963 & 1975	Poor
HARR RANCH				
N/A	Harr Ranch Residence	1	1956	Poor
N/A	Harr Ranch Garage	1	1956	Poor
N/A	Greenhouse	1	1956	Poor
END OF HIGH RIDGE TRAIL				
N/A	Red Barn		1914 – 1930	Poor
CAMP BUTLER				
29	Camp Butler Overlook & Picnic Area	1	NA	NA
OTHER AREAS WITHIN SUGARLOAF RIDGE STATE PARK				
30	Footbridge	1	1999	Good
31	Water Tank #1	1	1986	Fair
32	Water Tank #2	1	1977	Poor
33	Water Tank #3	1	1977	Poor
34	Electricity Transformer Pole	1	Unknown	Good

Notes:

[a] Condition assessment derived from head ranger and maintenance staff observations, October 2002.

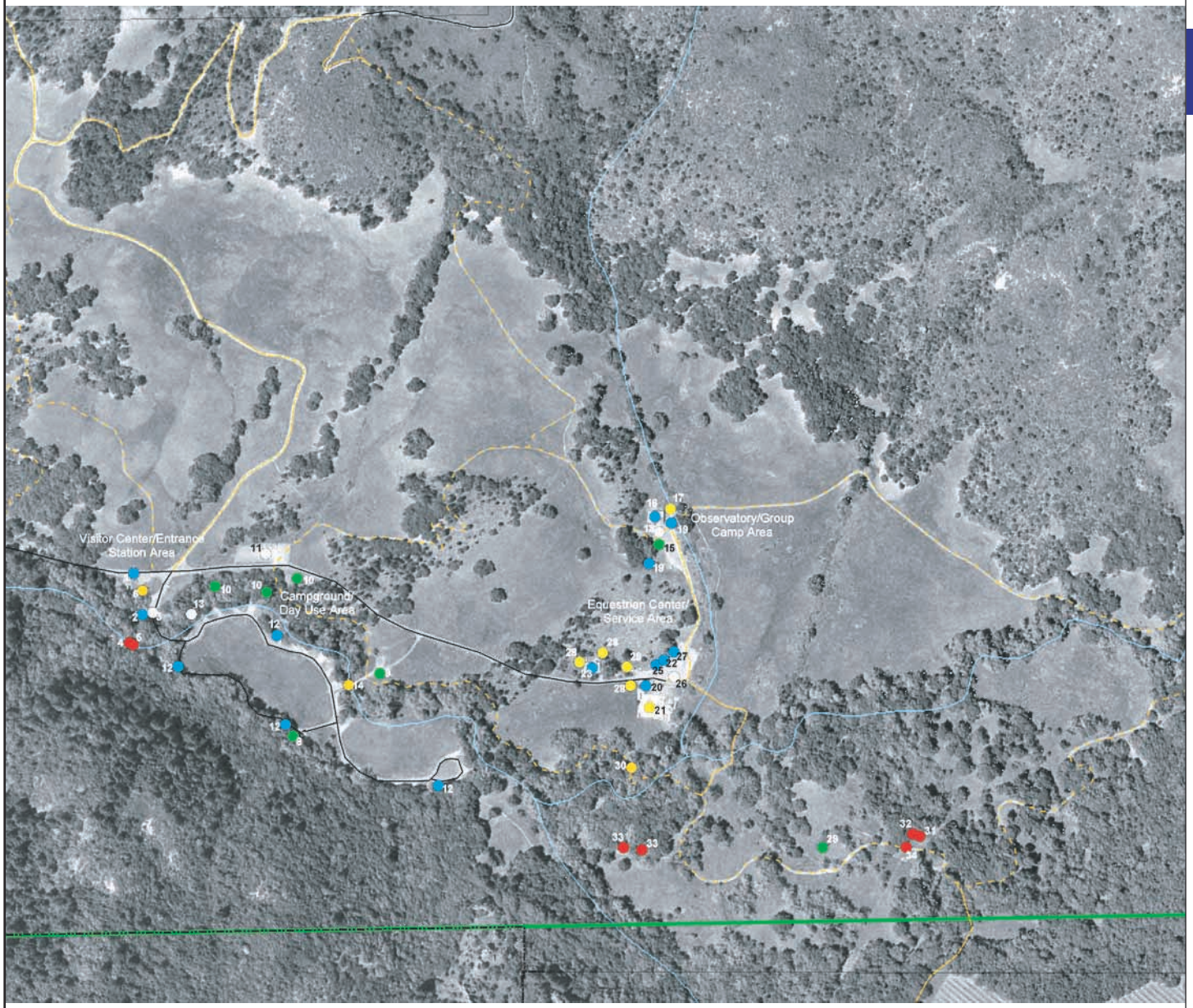
NA = Not applicable

Map 9: Existing Facilities

Sugarloaf Ridge State Park

EXISTING FACILITIES

MAP 9



Facilities*

- Buildings
- Park Equipment
- Roads and Parking
- Trails and Footbridges
- Use Areas
- Utilities

**See Table 2-4 for a key to map numbers.*

Basemap Features

- Study Area Boundary
- Sugarloaf Ridge State Park
- Paved Access Roads to Sugarloaf Ridge
- Dirt Roads with Access to Sugarloaf Ridge
- Trails within Sugarloaf Ridge State Park
- Streams

N

400 200 0 400 Feet

Source: Sonoma Ecology Center 2002; Sonoma State University 2002; EDAW, Inc. 2002

10.27.2003

EDAW

homestead near the Hood Mountain Regional Park boundary; and a barn from another previous homestead is located at the northern end of High Ridge Trail. Although the sites may have historical and cultural resource value, they also have characteristics as flat areas in this otherwise hilly terrain that make them appealing for potentially siting facilities.

Visitor Center/Entrance Station Area

The park's entrance station (#1 on Map 9) and visitor center (#2) are located approximately 1.25 miles into the park from the entrance sign and gate on Adobe Canyon Road at the park's western boundary. Rangers collect entrance fees at the small entrance kiosk, and an iron ranger is available for visitors to self-register after hours. A rain gauge and thermostat are located next to the flagpole by the kiosk.

The visitor center is located along Sonoma Creek near the entrance to the campground, where visitors can find general information, interpretive displays, and guides to the natural and cultural history of the park. The 720-square-foot structure was built as a temporary facility in 1987 on pier blocks. While the building does not meet all ADA standards, it does include a ramp up to the building and is generally barrier-free. The building is in fair condition; however, it does not have a foundation and occasionally leaks during heavy rains. The building was built on piers to avoid flooding during creek overflow conditions.

An ADA accessible portable toilet is located in the parking lot (#3) and serves both the entrance station and visitor center. Rangers have indicated a desire for a permanent restroom facility within the building, but septic tank and leachfield space requirements cannot be met due to proximity to the creek. A wooden footbridge (#6) traverses a drainage area and provides a pedestrian path between the kiosk and the visitor center.

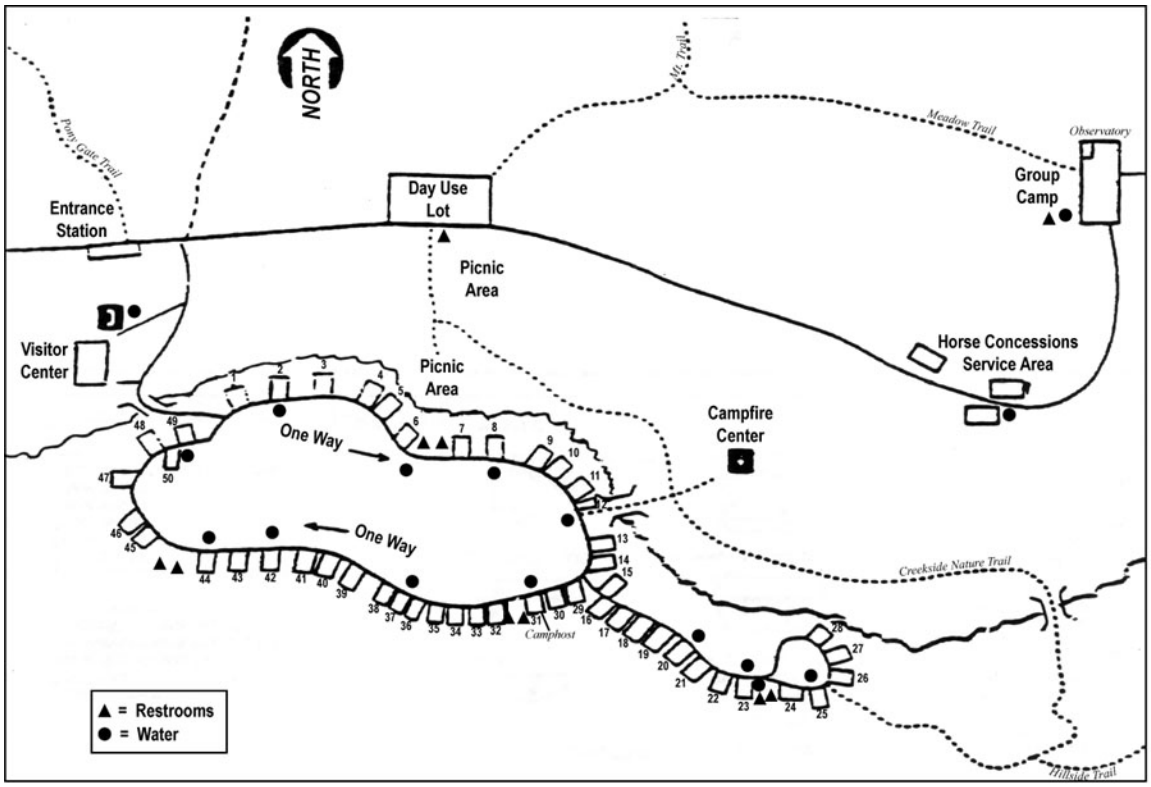
A four-chamber metal storage unit for firewood is located to the south of the entrance station kiosk, before the visitor center. Although it is in a convenient location for campers to purchase firewood from the rangers on duty at the entrance kiosk or at the visitor center, the unattractive metal storage unit is one of the first things visitors see as they enter the park. The water well (#5) and pump station (#4), which supply all of the main camp area, are located behind the visitor center. A more detailed description of the water system within the park is provided in the utilities section of this report.

Campground/Day Use Area

Fifty family campsites (#7) including one camp host site (#8) are located in the flat land between Sonoma Creek and a rock face to the south. This is the only family campground in the park and has a capacity of 400 people, 8 people per campsite. Reservations for the family campsites may be made between March 15th and October 31st each year. The campsites are filled on a first-come, first-served basis the rest of the year. Not all the sites are on the Reservation System because of having to close specific sites due to SOD infestation, makes some sites hazardous.

The campsites are arranged around the campground access road in a partial figure eight within two open fields: 17 campsites are located at the edge of Sonoma Creek, 19 campsites along the rock wall on the south side of the first loop, and 14 campsites on the second partial loop, primarily along the south side (see Figure 2-3). The open meadows are frequently used by campers for sport and play. Each campsite includes a picnic table and a fire ring. Two campsites and two toilets are ADA accessible. The camp host site is the same as the rest of the sites. Rangers have identified the need for telephone service at the camp host site.

Figure 2-3: Sugarloaf Ridge State Park Family Campground



Eight toilets, in sets of two (#12), and 14 potable water faucets are located around the campground. The restrooms are wooden-framed buildings with flush toilets, but do not have sinks or electricity. Each set of two toilets is hooked up to a separate septic tank and leachfield. No showers are provided.

The campsites along the south side of both loops are very close together, and there is little vegetation to separate one campsite from another. The acoustics in the campground, particularly near the south wall, allow a person on one side the campground to easily hear a person speaking in conversational tones on the other side of the campground. The combination of these factors creates a noisy and crowded camping experience.

About one-third of the campsites are located along the edge of Sonoma Creek. People wading and playing in the creek near the campsites exacerbate erosion and sedimentation problems within the creek. A discussion of water resources is provided in subsection 2.2.2.

To access the campground, vehicles must cross a single-lane, low-water concrete bridge (#13) over Sonoma Creek. People camping overnight are encouraged to park their vehicles within the campsite in order to save the limited parking space in the park for day-use visitors. Recreational vehicles (RVs) are allowed in the campground; however, there are no hookups, and RVs and trailers longer than 24 feet are not able to cross the low-water bridge. During heavy rains and when creek levels are high, water flows over the bridge, rendering the campground inaccessible by vehicle. In addition, the campsites along the southern part of the first loop are closed during the rainy season in late fall and winter due to wet and boggy conditions below the rock face. Approximately 30 campsites are open during the winter.

There are two pedestrian access points to the campground across Sonoma Creek. Pedestrians share the low-water bridge with vehicles on the west side of the campground, although the bridge is not wide enough for both at one time. A metal footbridge (#14) on the north side of the campground, near the center of the figure eight connects the campground to the campfire center on the north side. The steel footbridge was constructed in 1988 and is in good condition. The footbridge is lighted at night.

The campfire center (#9) is a small amphitheater with 16 benches and a fire ring. Rangers and volunteer groups use the outdoor screen and projector to give nature talks and other presentations to visitors. The campfire center has electricity, water, and is ADA accessible. The campfire center is an adequate size for the existing campground.

Three day-use picnic areas (#10) are located under the canopy of trees north of the campground and south of Adobe Canyon Road. Fourteen picnic tables and belsen stoves (upright grills) are distributed within the three picnic areas. A gravel parking lot (#11) for picnickers and day-use hikers is located north of the picnic area, across the main road. The day-use parking lot can accommodate up to 34 cars and is filled most weekends from late spring to early fall.

Observatory/Group Camp Area

The group campsite (#15) and observatory (#16) are located at the end of the public access portion of Adobe Canyon Road, to the northeast of the serve area and the main campground. The group camp accommodates up to 50 people and is one of the only horse camps in the region. A small corral (#17) for up to four horses is located behind the observatory. Horses are not allowed in the family campground.

The Robert Ferguson Observatory is located in a temporary building adjacent to the group campsite. A small dirt/gravel parking lot (#18) is shared by both the group camp and observatory. There is one wooden outhouse toilet (#19) and one portable toilet for the observatory and group campsite. The wooden outhouse was built in 1982 and is in poor condition. The building is not ADA accessible. The portable toilet was installed in 2000

and is ADA accessible. A second wooden outhouse toilet with a pit holding tank has been boarded up and is no longer in use.

There are ongoing conflicts between the observatory and the group campsite. Because the illumination from the group campsite interferes with night viewing, and the activity in the observatory and movement of cars in and out of the parking lot can disturb the group camp, the group campsite must now be rented in conjunction with the observatory. The observatory put the group camp on hold for approximately 120 nights in 2002 through special event permits. Because this is the only group campsite in the park, this requirement has severely limited the number of weekends the group camp is available to people not connected with the observatory. Reservations for the group campsite and observatory may be made year-round.

Service Area/Horse Barn

This area includes a barn (#20) and horse corral (#21) that can accommodate 10 to12 horses, located to the east of the family campground area along Adobe Canyon Road. Water is available within the horse barn. These corrals and part of the barn is for the exclusive use of the Hodrse Concessionaire. A horse concession offers guided horseback riding tours. A portable ADA accessible toilet is located in the parking lot near the horse barn. A wooden outhouse (#27) built in 1982 is located nearby, but is not in use.

The park maintenance service area is also located in this area. This area includes an office and maintenance shop building (#22), a mobile home (#23), and a gravel service area/parking lot (#26). The mobile home is the only employee housing within the park. A building pad (#24) for another mobile home, and electricity, water, and septic connections are located nearby. As described earlier, a greenhouse (#25) will be constructed next to the maintenance building in 2003. The greenhouse will be used for vegetation restoration projects and educational programs.

Harr Ranch

The former Harr Ranch homestead is located near the northern end of Pierson Road, upstream from the former Golden Bear Lodge near the boundary between Hood Mountain Regional Park and Sugarloaf Ridge State Park and next to the Freeman inholding.

The single-family house, garage, and greenhouse were built in 1956 and are currently in need of repair. The area around the buildings is relatively flat, with wet meadows and a perennial pond nearby. A water well and a septic tank serving the residence is present, but the depth, water quality of the well, and general condition of both facilities are unknown. Because of the state of the buildings, visitors are not allowed to enter. No-trespassing signs are posted.

Camp Butler

Camp Butler (#29) is an overlook off of Hillside Trail near the southern boundary of Sugarloaf Ridge State Park. The overlook is located in a hanging valley and has expansive views across the main campground area, Sonoma Creek, and over to Bald and Red Mountains. The area was formerly used as a Boy Scout camp in the 1920s and 1930s and

included dormitories and a kitchen. Only remnants of the building's foundation remain. The overlook includes one picnic table and a drinking fountain.

Red Barn

An old red barn, a trough, and the foundation of the former Hurd Ranch residence are located at the northern end of the High Ridge Trail, near the border with the Santa Rosa Creek Watershed Management Zone. The barn is crumbling, and visitors are not allowed to enter . Relics from the former residence are strewn about the area. Although a spring provides a water source, there is no electricity or septic service in this area. A flat area approximately 100 by 100 feet is located beside the barn.

Utilities and Services

Table 2-5 identifies the utilities available in each of the facility areas within the park. Water, septic treatment, electricity, propane gas, and telephone service are provided in Sugarloaf Ridge State Park, primarily in the main campground area. All water and sewage treatment facilities for the park are contained on site. Electricity service is provided by PG&E and telephone service by SBC. Two propane gas tanks are located within the park and are refilled as needed. No utility connections are provided in the Santa Rosa Creek Watershed Management Zone, although there are two PG&E transmission lines (115 kilovolt [kV] and 60 kV) that run through the northern section of the site. A description of each of the utility systems is provided below.

Water Source and Water Treatment Facilities

All water used in park facilities comes from a single 350-foot-deep well located behind the visitor center. The well was built in 1989 and has never run dry; water flows at a rate of 22 to 25 gallons per minute. A submersible pump and control near the well draws water and pumps it up hill to water tanks 1 and 2, located in the southeastern part of the park, near the southern park boundary. The water then flows by gravity feed to the service area/equestrian center and to water tank 3. Water tank 3 serves the visitor center and family campground.

The well water has high levels iron and manganese. Water filters in tanks 1 and 2 cannot reduce the concentrations of these chemicals below state secondary standards; however, the concentrations are not high enough to present a health risk. Tanks 1 and 2 also have an electrical chlorine and ozone dispenser. Tank 3 does not have electricity, so chlorine is dispensed manually.

Table 2-5: Utilities Provided in Sugarloaf Ridge State Park

AREA	ELECTRICITY	PROPANE GAS	WATER	SEPTIC TANK & LEACHFIELDS	TELEPHONE
Visitor Center	Yes	Yes	No	No	Yes
Campground/Day Use Area	Campfire Center & Camp Host Site Only	No	Yes	Yes	No

Equestrian Center/Service Area					
Mobile Home & Pad	Yes	Yes	Yes	Yes	Yes
Office/Maintenance Shop	Yes	No	Yes	No	Yes
Horse Concession	Yes	No	Yes	No	Yes
Group Camp	No	No	Yes	No	No
Observatory	Yes	Yes	Yes	No	Yes
Harr Ranch [a]	Yes	No	Yes	Yes	Yes
End of High Ridge Trail	No	No	No facilities, natural spring only	No	No
Camp Butler	No	No	Yes	No	No
Santa Rosa Creek Watershed Management Zone	No [b]	No	No	No	No

Notes:

[a] Utility connections are provided at the former residence; however, the park does not use any utilities at that site.

[b] The PG&E transmission lines that run through the northern section of the park carry electricity from substation to substation. The voltage is too high for the park to draw electricity from the transmission lines directly; distribution lines would need to be provided from the local substation to the park.

All three tanks are in need of maintenance. Tank 1 is a wood tank built in 1986 and can hold 10,000 gallons. The tank itself is in good condition, but the roof needs repair. Tanks 2 and 3 are wooden tanks, built in 1977. Tank 2 can hold 15,000 gallons, and tank 3 can hold 10,000 gallons. Rangers note that tank 3 has enough carrying capacity for the existing camp and reserve for fire suppression. However, after a busy weekend such as the 4th of July, the tank needs to be refilled. Control wires and valves that regulate the distribution of water between the pump, water tanks, and the destination faucets are in poor condition and need to be replaced.

Water is distributed to water faucets, drinking fountains, and restrooms with flush toilets within the park. No public showers are provided within the park. Water faucets can be found throughout the family campground, the group camp, the service area/horse barn, and by the visitor center. Below each faucet is a rock sump that acts as a small leachfield. The number and location of faucets is adequate to serve demand from the existing facilities. Five drinking fountains are provided in the park: two at the group camp, one near the equestrian center/service area, one at the visitor center, and one at Camp Butler.

The waterlines that service the campground from the water tanks are buried very superficially. In some locations, they are located only 8 inches underground. This was discovered during the road re-engineering project that was conducted in 2002, when the waterline placement interfered with road recontouring work.

Several fire hose cabinets are provided in the park: three near the service area/horse barn, and one near the campfire center. The cabinets and hoses are in disrepair, and the water lines leading to the fire hose cabinets are standard household pressure and are not suitable for fire suppression. The hoses may be used to refill fire truck tanks in the event of a fire.

In addition to the well and associated distribution system, Sugarloaf Ridge State Park has three additional sources of water outside of the main campground area: a water well at the former Harr Ranch residence and two natural springs, one at the northern end of the

High Ridge Trail, and the other near the southern park boundary. The condition of the water and size of the well at the Harr Ranch site is unknown. The spring at the end of High Ridge Trail has not been developed with any water wells, water filters, or other treatment facilities. Although not currently in use, both of these water sources may become important if backcountry camping or equestrian camping are allowed in these areas in the future.

The spring near the southern boundary is located approximately 100 feet uphill from water tank 3. Prior to the construction of the well in 1989, this spring was used as the water source for the campground and other park facilities. The well is capable of pumping 22.5 gallons a minute. The well was constructed because the spring had low flow during the late summer and could not be relied on to supply the park's demands.

The capability of either the well or the spring, or a combination of both, to sustain additional water demand (such as public showers in the campground) is unknown. The water well has never run dry and has met existing water demand. If the spring system were in working order, it may be able to supply the existing facilities in the park, but would not be able to sustain additional water demand, such as showers.

Wastewater Treatment

The toilets in the park are served by septic tanks or were built as pit toilets. There is no central wastewater treatment facility. Eight flush toilets in wooden outhouses are placed in sets of two around the family campground area. The restrooms were built in 1967, and each pair is connected to a 1,200-gallon septic tank and leachfield. No sinks are provided in the wooden outhouse toilets. The mobile home and mobile home pad are also connected to a 1,200-gallon septic tank and leachfield.

Two wooden outhouse toilets are located near the group camp and observatory. These toilets were built as pit toilets and are in poor condition. One toilet has a cement vault that is thought to be leaking. The outhouse is boarded up and not in use. The other toilet has a plastic tank to contain the waste. No septic tanks are located at the group camp. A seasonal creek runs along the east side of the group camp parking lot, which may limit the potential for construction of a septic tank and leachfield in this area in the future.

Five portable toilets are under contract for additional public services and to provide ADA accessible restrooms. The portable toilets are located near the observatory, the visitor center, the horse concession parking area, the day-use parking lot, and near the ADA accessible campsites. The portable toilets are pumped weekly or more often, as needed, during peak times.

Another septic tank exists in the Harr Ranch area, originally installed to serve the residence. A pump station pumps the septic waste to a leachfield above the homestead area, because the topography does not allow for an adequate-sized leachfield near the residence. The toilet, septic tank, and pump have not been used since the Harr Ranch came under Department ownership. The size and condition of the septic tank and pump are unknown.

Overall, the number and location of toilets are sufficient to meet current park demand. However, most permanent toilets are only in fair or poor condition and do not meet ADA accessibility standards. In addition, there are no toilets in any of the buildings within the park, with the exception of the mobile home. Rangers have indicated a desire for a restroom in the visitor center for volunteer and ranger use; however, there is not adequate room for a septic tank and leachfield in the immediate area.

Electricity/Gas

PG&E provides electricity to Sugarloaf Ridge State Park. Three sets of PG&E transmission lines run through the park: 60-kV transmission lines run along the southeastern edge of the park, and 115-kV and 60-kV transmission lines run through the northern end of the Santa Rosa Creek Watershed Management Zone. PG&E owns easements under the transmission lines and along roads to access the lines. PG&E is responsible for clearing vegetation away from the transmission lines to minimize fire hazard.

An electrical transformer pole located near water tanks 1 and 2 brings electricity from the PG&E transmission lines to the service area, where cables span out to the facilities in the main campground area. Electricity is provided to the visitor center, camp host site, campfire center, horse barn, the office/shop and mobile home in the service area, and the observatory. All electricity cables from the transformer pole to the facilities are underground. Electricity cables and phonelines run under the main road where practical.

A buried 12-kV dropline crosses Hillside Trail just upslope of Camp Butler. Previous to severing it during road reconstruction in 2002, it did not appear on PG&E's maps. The only other area in the park with electricity service is the former residence at Harr Ranch. The transmission lines connect to the lines on Adobe Canyon Road, near the park entrance and Golden Bear Lodge. The electricity at this location comes from a different circuit than electricity for other park facilities.

Although PG&E high-tension powerlines run through the northern portion of the Santa Rosa Creek Watershed Management Zone, no electrical connections are provided to the property. The voltage in the transmission lines is too large to draw electricity for local use within the park.

Five-hundred-gallon propane tanks are located at the mobile home and visitor center. The propane is used for cooking and heating the buildings, and the tanks are refilled as needed.

Telephone

Telephone lines and service are provided by SBC to the entrance station, visitor center, observatory, horse barn, and to the office/shop and mobile home in the service area. All telephone cables are located underground in the park. The main telephone connection to outside of the park is located under Adobe Canyon Road. A need for telephone service at the camp host site has been identified. The camp host relies on a portable telephone that gets reception from the visitor center. In order to receive phone service to the camp host, a new trench for the telephone line must cross Sonoma Creek.

An SBC microwave station rises above Red Mountain. The station is enclosed by chain-link fencing. The Department and the California Highway Patrol (CHP) each have repeaters on the station. SBC is responsible for maintaining the station and owns an access easement on the road leading up to it.

Emergency Services

Park Security

Park rangers provide security for Sugarloaf Ridge State Park and are the first to coordinate fire and medical emergencies. Rangers have law enforcement authority and each carries a gun and a badge. Although not far from the city of Santa Rosa, there is not a high incidence of urban crime within the park. Rangers in the Silverado District work together to support the multiple state parks in the district. Sugarloaf Ridge, Annadel, and Jack London State Parks are combined into one subunit, which is overseen by a supervising ranger. Six rangers manage the three parks. Radio communications between the three parks allows rangers to mobilize staff in case of an emergency.

Fire Protection

The General Plan study area, like most wildlands in the area, is particularly vulnerable to fire; with the exception of the creekbeds and some perennial springs, the area typically dries out in the summer, and grass and brush areas are highly flammable.

The *California Department of Forestry and Fire (CDF)* is the jurisdictional agency responsible for responding to wildland vegetation fires. CDF does not have service boundaries for each fire station, but responds to a wildland fire by using equipment from the nearest fire stations. The closest CDF fire station is in Glen Ellen, approximately 12 miles from the northern Hood Mountain Regional Park/Santa Rosa Creek Watershed Management Zone entrance, 8 miles from the main campground area of Sugarloaf Ridge State Park, and 1.5 miles from the intersection of Nunns Canyon Road and State Route 12. The Glen Ellen CDF fire station has two Type III fire engines and one Type III bulldozer. Type III equipment includes all-terrain vehicles capable of responding to fires in rugged terrain.

In addition to the equipment from the Glen Ellen station, CDF would be able to draw on equipment from CDF fire stations in St. Helena, Santa Rosa, and Hilton to respond to a fire in Sugarloaf Ridge State Park. CDF would have access to five fire engines, two bulldozers, two air tankers, and two hand crews. Typically, at least one inmate crew is assigned to a project in Sonoma County at any given time. The crews include 17 people and 1 supervisor.

The study area is also within four different fire district service area boundaries: the Kenwood, Rincon Valley, Glen Ellen, and Mayacamas Fire Protection Districts. These fire districts support CDF in case of a wildland fire. The fire districts may be the first to respond to a fire or medical emergency, due to the proximity of local fire stations to the park. The fire districts provide first-response medical care in addition to fire protection services.

The *Kenwood Fire Protection District #31 (KFPD)* service area includes the existing boundaries of Sugarloaf Ridge State Park. A local KFPD volunteer rescue unit would likely be the first to respond to a fire in Sugarloaf Ridge State Park. The KFPD fire station is approximately 4 miles from the main campground area of Sugarloaf Ridge State Park. KFPD equipment includes two Type I fire engines, one Type III (all-terrain) fire engine, a 3,000-gallon water tender, a medical squad vehicle, and rope rescue equipment. The average response time overall is 5 minutes, although the typical response time to the campground area within Sugarloaf Ridge State Park is 10 minutes.

The *Rincon Valley Fire Protection District #75 (RVFPD)* would serve the Santa Rosa Creek Watershed Management Zone and Hood Mountain Regional Park. RVFPD has a contract with Sonoma County to serve county lands within its service boundary. The closest Rincon Valley Fire Protection District station is the Middle Rincon Road station in Santa Rosa, approximately 5 miles from the Los Alamos Road entrance. Equipment at the fire station includes one Type I and one Type III fire engine and a water tender. RVFPD average response time is 5 minutes; however, the typical response time to the Santa Rosa Creek Watershed Management Zone and Hood Mountain would be 20 to 30 minutes, because roads are not well marked and are in generally poor condition.

The *Glen Ellen Fire Protection District* station is located on State Route 12 and Arnold Drive, approximately 1.5 miles from Nunns Canyon Road. The station includes two Type I, one Type II, and two Type III engines, one rescue medical squad, and one 2,000-gallon water tender. The station would likely be the first to respond to a fire in the Nunns Canyon Management Zone. The average response time to the Nunns Canyon Management Zone entrance is 5 minutes.

The *Mayacamas Fire Protection District #32 (MFPD)* would serve the east side of the Mayacamas Ridge up to the ridgeline in Sugarloaf Ridge State Park that separates Sonoma and Napa Counties, outside of the General Plan study area. The MFPD would assist CDF and the other fire protection districts in the event of a fire near the ridgeline. The MFPD is a volunteer fire protection district and could not be reached for equipment and response-time information.

Department rangers are not trained in fire suppression but would notify the dispatcher at CDF and the appropriate fire protection districts and direct traffic in an emergency situation. Approximately one-half of each water tank within the park (17,500 gallons) is reserved for use in fire suppression. However, as noted previously, the fire hoses in the park have household water pressure and thus could only be used for refilling the water tenders and fire engines from CDF and the fire protection districts.

Medical Aid

American Medical Response Ambulance Company (AMR) contracts with Sonoma County to respond to medical emergency calls in the General Plan study area. The County requires AMR to meet response-time requirements assigned to zones within the county. The General Plan study area is within the Semi-rural, Rural, and Rural Best Effort zones.

The respective response-time requirements for these zones are 14 minutes, 29 minutes, and as soon as possible for emergency calls. The average response time to the main campground area in Sugarloaf Ridge State Park is 15 minutes.

The closest station to the park is on Los Gulicos Road near State Route 12. The station includes Type II ambulances and four-wheel drive "quick response vehicles." The four-wheel drive vehicles are used in areas where ambulances cannot travel to bring paramedics to the patient and return them to the ambulance. In addition, AMR has two helicopters available 24 hours a day for response to accidents in remote areas. The helicopters are stationed at the Santa Rosa/Sonoma County airport and have an average 20-minute response time to the General Plan study area. The Sonoma County Sheriff's Department helicopter and paramedics provide long-line emergency rescue and secondary support for all emergency calls requiring a helicopter.

Rangers are trained in emergency-responder medical aid. Medical equipment on site includes oxygen, trauma kits, including bandages, etc., and equipment to assess the extent of injuries, such as blood pressure gauges and stethoscopes. The fire protection district medical squads are generally the first to respond to a medical emergency call in the study area and are able to provide first-responder care until the ambulance arrives.

Emergency Access/Egress

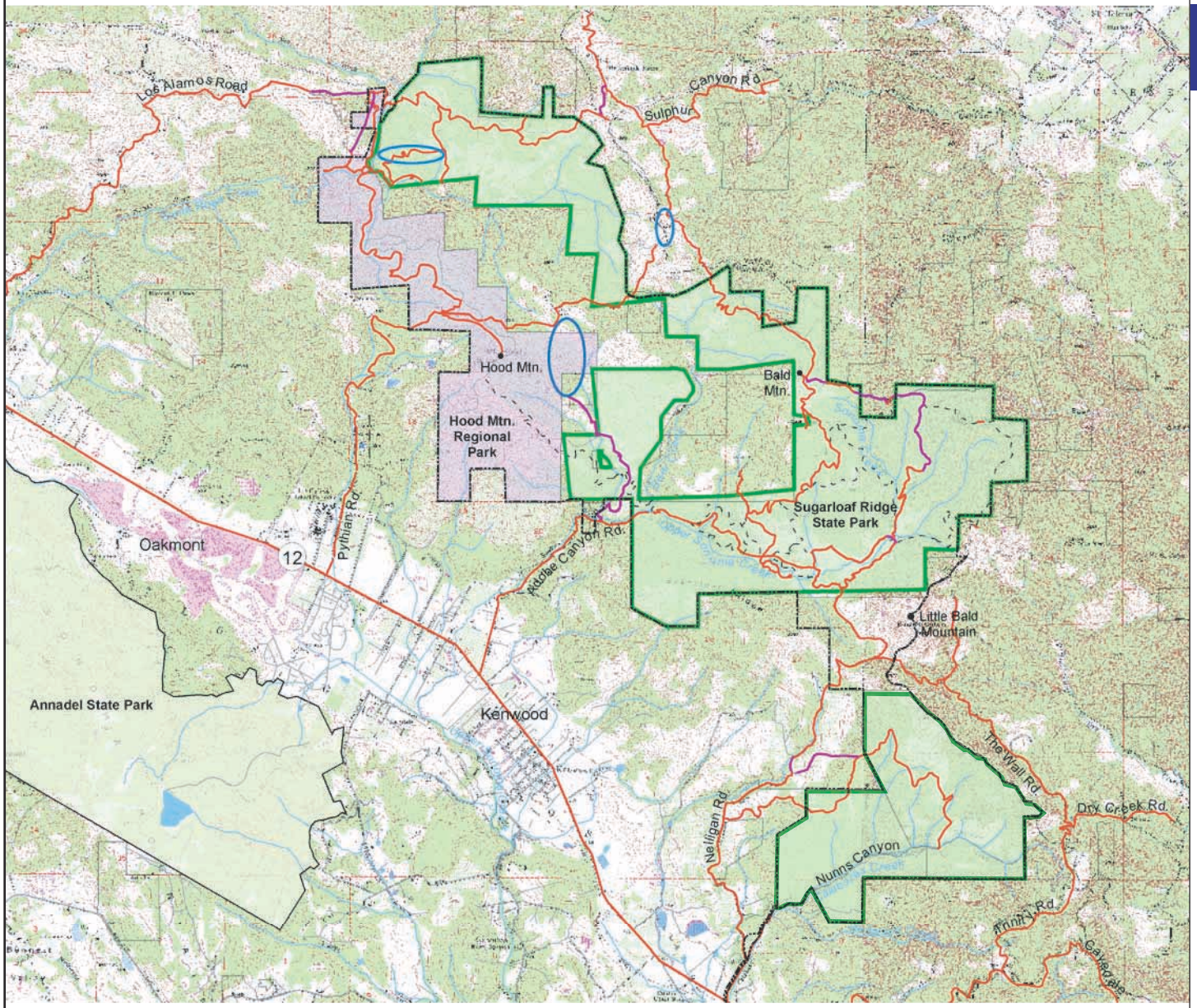
The study area includes a number of fire roads that provide access to remote areas of the park (see the Recreational Trails section of this chapter, above). Map 10 identifies emergency access and egress routes, based on GIS roads and trails data and Department staff observations. Often the fire roads are single-lane roads in fair to poor condition. It is therefore important for emergency vehicles to have connecting access and egress routes through the wildlands. The following gaps in emergency access circulation patterns in the General Plan study area are shown on Map 10:

Map 10: Emergency Access and Egress

Sugarloaf Ridge State Park

EMERGENCY ACCESS AND EGRESS

MAP 10



Emergency Vehicle Access Roads and Trails 8-Feet Wide and Greater (Per Existing GIS Database)

Known Emergency Access*

Other Paved Roads < 8 Feet Wide

Other Dirt Roads < 8 Feet Wide

Connections or Upgrades Needed

Basemap Features

Study Area

Sugarloaf Ridge State Park Boundary

Streams

Hood Mountain Regional Park

N

4,000 0 4,000 Feet

Source: Sonoma Ecology Center 2002; Sonoma State University 2002

10.27.2003

EDAW

- An improved connection is needed between Los Alamos Road and the Santa Rosa Creek Trail in Hood Mountain Regional Park and the northern fire roads (Wildcat Creek Trail/Maple Glen Trail) in Sugarloaf Ridge State Park in order to provide an emergency access route to the Santa Rosa Creek Watershed Management Zone from the Sonoma County side of the Mayacamas Ridge. The Los Alamos Road extension is too steep and narrow for emergency vehicles, and the road from Hood Mountain Regional Park through the Spaulding property to the Santa Rosa Creek Watershed Management Zone is closed due to a landslide. District staff indicate that the Quercus Trail is substandard and requires road upgrades to provide fire access.
- On the east side of Hood Mountain Regional Park, a gap exists between the fire road extending from Pythian Road and the extension of Pierson Road that runs from Adobe Canyon Road through the Bear Creek Watershed Management Zone of Sugarloaf Ridge State Park past the Harr Ranch area.
- A connection is needed across the Mayacamas Ridge from the fire roads that pass through the Santa Rosa Creek Watershed Management Zone to the fire roads in Napa County.

Roads identified as 8 feet wide or greater in the GIS database are shown on Map 10 as emergency access and egress routes. The GIS information was supplemented with Department staff knowledge of the area; additional routes known to be accessible for emergency vehicles, but not shown as 8 feet wide or greater in the GIS database, are also identified on Map 10. Similarly, Department staff identified the Quercus Trail fire road in the Santa Rosa Creek Watershed Management Zone as inaccessible, since some of the raidii are too tight and some crossings are not wide enough for fire trucks. Some of the dirt roads are in poor condition, with improper drainage and deep ruts that could restrict vehicle movement. The GIS database emergency access/egress information needs to be field-verified and updated with road conditions to provide an accurate assessment of the capability of emergency vehicles to pass on the emergency access routes. The Circulation section, below, provides a description of access points to the subunits within the study area.

Circulation

Access

Regional access to the vicinity of Sugarloaf Ridge State Park and Hood Mountain Regional Park is provided by State Route 12. State Route 12 extends northwest from the General Plan study area to the city of Santa Rosa and provides a connection with U.S. Highway 101, as well as southeast from the study area to the cities of Sonoma and Napa. Highway 101 connects to other regional routes that provide access to the main population centers of the San Francisco Bay Area. State Route 12 has two travel lanes through the majority of the study area and speed limits range from 45 to 65 miles per hour. The roadway widens to four lanes in Santa Rosa.

Direct access to Sugarloaf Ridge State Park is provided by Adobe Canyon Road, which intersects State Route 12 just north of the community of Kenwood and about five miles

southeast of Santa Rosa. Adobe Canyon Road has two travel lanes and extends east from State Route 12 about 2.25 miles before entering the park. Centerline striping is in place, but only minimal shoulder areas are provided. There are frequent curves the last 1.5 miles or so before the park entrance.

Within the park, the roadway narrows (while still allowing two-way traffic flow), has no centerline stripe, and begins a west-to-east uphill grade. There are frequent sharp curves in the 1.25 miles between the park entrance and the park entrance station, where fees are paid. The entrance road is climbs out of a steep canyon, requiring extensive use of gabion baskets to support the roadbed. This road is subject to closure during heavy rainfall and in some cases with snow. Along this section of the road are intermittent dirt shoulder areas for limited off-road parking as well as two no-fee dirt parking areas at trailheads.

Adobe Canyon Road is stop-sign-controlled at State Route 12, and a left-turn lane is provided on the southbound State Route 12 intersection approach. A sign is in place at the intersection directing drivers to Adobe Canyon Road to access Sugarloaf Ridge State Park. There are about 90 residences along Adobe Canyon Road between State Route 12 and the state park entrance, along with a wine tasting room.

Direct access to the northern entrance of Sugarloaf Ridge State Park and Hood Mountain Regional Park is provided by Los Alamos Road, which intersects State Route 12 in the city of Santa Rosa about five miles north of the Adobe Canyon Road intersection. State Route 12 is four lanes wide at Los Alamos Road, and the intersection is signalized. Los Alamos Road has two travel lanes and centerline striping for about 3.5 to 4 miles as it extends east and uphill from State Route 12. The two-lane section ends and the road narrows significantly for roughly a mile before entering Hood Mountain Regional Park. There are many sections of this narrowed roadway where only one-directional flow is possible. Although there are no steep grades on the narrowed section, there are frequent curves, many with limited sight lines due to topography, trees, and brush. This narrow road segment has been posted with a 10-mile-per-hour speed limit. Los Alamos Road has minimal shoulder areas along its entire length. Given the long downhill grade (east to west) out of the park, some vehicles may experience overheated brakes and not have a place to pull off the road. This situation could cause a significant problem for vehicles towing horse trailers.

Direct access to the Nunns Canyon Management Zone is provided by Nunns Canyon Road. Nunns Canyon Road is a one-lane, poorly paved roadway extending east from State Route 12. It is stop-sign-controlled on its approach to State Route 12, and a left-turn lane has been provided on the southbound State Route 12 intersection approach.

In the future, direct access to Hood Mountain Regional Park may be provided by Pythian Road, through the recently acquired Johnson property. Pythian Road extends both east and west from its signalized intersection with State Route 12. Its easterly leg, which would serve the park, extends for less than a mile as a well-paved, two-lane road with centerline striping and serves a winery, a wine tasting room, county juvenile facilities (Los Guilicos Juvenile Facility), and a few residential units. Beyond this point, the roadway narrows for

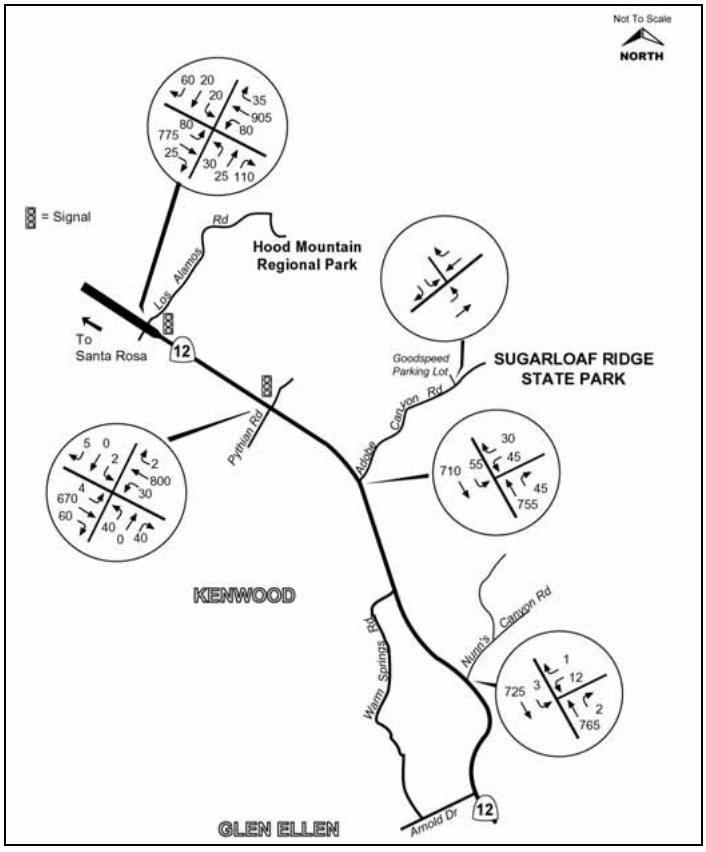
less than a quarter mile (although still allowing two-way flow), and then narrows to a single-lane, poorly paved roadway.

Volumes

Most traffic exits the park on Sunday afternoons, when campers are going home and hikers are finishing up the day's activities. This time also coincides with a weekend peak traffic volume on State Route 12, typically between 2:00 and 5:00 p.m., the peak period in winter months. In summer months, the peak period is likely between 5:00 and 8:00 p.m.

Crane Transportation Group conducted traffic counts on Sunday afternoon (2:00 to 5:00 p.m.), November 17, 2002, at the State Route 12 intersections with Los Alamos Road, Adobe Canyon Road, and Nunns Canyon Road, as well as along Adobe Canyon Road at the entrance to Sugarloaf Ridge State Park. Traffic count results are presented in Appendix D. The late-fall counts were then seasonally adjusted to reflect peak summertime traffic conditions along State Route 12 and along Adobe Canyon Road at the park entrance. Seasonal adjustments for State Route 12 were based upon extensive previous traffic count surveys by Crane Transportation Group, while the summertime park volumes were developed by state park staff. Existing summer Sunday afternoon peak-hour traffic volumes (for 3:30 to 4:30 p.m.) are presented in Figure 2-4.

Figure 2-4: Sunday P.M. Peak-Hour Volumes
Existing Summertime Peak Hour



Source: Crane Transportation Group, 2002.

Intersection Operation (Level of Service)

Intersections are usually the capacity-controlling locations of any circulation system. Operating conditions are presented based on a "level of service" (LOS) scale, which ranges from LOS A, indicating uncongested conditions, to LOS F, indicating extended delay. The methodology is explained in Appendix D. The LOS designation for a signalized intersection pertains to the entire intersection (such as at the State Route 12 intersections with Los Alamos Road and Pythian Road), whereas at a stop-sign-controlled intersection, the critical LOS designation pertains only to the delay experienced by the side-street traffic that is stop-sign-controlled (such as at the State Route 12 intersections with Adobe Canyon Road and Nunns Canyon Road). Sonoma County uses LOS C as the poorest acceptable operation at signalized intersections, and LOS D as the poorest acceptable operation on stop-sign-controlled side-street approaches.

Table 2-6 shows that the signalized State Route 12 intersections with Los Alamos Road and Pythian Road are operating at acceptable levels of service during the peak traffic hour on a summer Sunday afternoon. However, the stop-sign-controlled Adobe Canyon Road approach to State Route 12 is operating unacceptably at LOS F, while the stop-sign-controlled Nunns Canyon Road intersection approach is also operating unacceptably at LOS E.

Table 2-6: Intersection Level of Service
Summer Sunday Afternoon Peak Hour

INTERSECTION	SIGNALIZATION	LOS	AVERAGE CONTROL DELAY (SECONDS)
State Route 12 / Los Alamos Road	Signalized	A	9.1
State Route 12 / Pythian Road	Signalized	A	5.5
State Route 12 / Adobe Canyon Road	Unsignalized	F (unsignalized)	92.7[a]
State Route 12 / Nunns Canyon Road	Unsignalized	E (unsignalized)	41.2[b]

Source: Crane Transportation Group, Year 2000 Highway Capacity Manual Analysis

Notes:

[a] Control delay in stop sign controlled Adobe Canyon Road left turn.

[b] Control delay in stop sign controlled Nunns Canyon Road approach.

Intersection Signal Needs

The need for traffic signals is determined using criteria called "signal warrants," which have been developed by the California Department of Transportation (Caltrans) and which are explained in Appendix D. Currently, the State Route 12 intersection with Adobe Canyon Road has Sunday p.m. peak-hour volumes approaching peak-hour signal warrant criteria levels, while peak-hour volumes at the State Route 12/Nunns Canyon Road intersection are well below peak-hour signal warrant criteria levels.

Transit Service

The Sonoma County Transit Agency bus #30 runs from Kenwood, located four miles from the main campground area at Sugarloaf Ridge State Park, eastbound to Santa Rosa and westbound to Sonoma. The price of a ticket to Santa Rosa is $1.45, and the price to

Sonoma is $1.75. Times between buses range from a half hour to 2½ hours on weekdays and 3½ to 4 hours on weekends. Sonoma County commuter bus #34 also runs between Santa Rosa and Sonoma, stopping in Kenwood, during the weekday peak hours. It runs southbound in the morning and northbound in the evening.

Parking

Table 2-7 identifies the existing parking lot capacity and estimated overflow parking available within Sugarloaf Ridge State Park and Hood Mountain Regional Park. Parking for the Adobe Canyon and Bear Creek Management Zones is provided within the main campground area and at trailheads and pullouts along Adobe Canyon Road between the entrance sign at the park boundary and the entrance station. Within the main campground area, parking is provided at each of the use areas described in Section 2.2, Existing Facilities, above. Parking for the Santa Rosa Creek Watershed Management Zone is provided at the northern entrance to Hood Mountain Regional Park off of Los Alamos Road. No public parking is currently provided for the Nunns Canyon Management Zone.

Table 2-7: Parking Lot Capacity and Overflow Parking

AREA	PRIMARY VISITOR USE	PARKING LOT CAPACITY	OVERFLOW PARKING
ADOBE CANYON			
Visitor Center/Entrance Station	Visitor check-in Interpretive exhibits	9	0
Campground/Day-Use Area Family Campground Day-Use Lot	Camping Hiking	100 34	25 0
Service Area/Horse Barn	Horseback riding Hiking	32[a]	0
Observatory/Group Camp Area	Observatory Camping/hiking	25	0
Goodspeed Trailhead	Hiking	10	8[b]
Waterfall Shoulder Pullouts	Hiking	10	2[b]
Ponygate Trailhead	Hiking	10	0
Adobe Canyon Road Overflow	Hiking	NA	20[b]
SANTA ROSA CREEK WATERSHED MGMT ZONE / HOOD MOUNTAIN REGIONAL PARK			
Los Alamos Road Entrance Parking Lot	Hiking	30	10[b]
TOTAL		210	117

Notes:

[a] The Service Area/Horse Barn lot is not striped and could accommodate 5 horse trailers. Typically, horse trailers occupy the equivalent of 2.5 standard parking spaces per horse trailer. If 5 horse trailers are parked in the lot, then 20 standard parking spaces would be available.

[b] Illegal Parking

NA = Not applicable

Visitor Center/Entrance Station Area

A small paved parking lot (six vehicles) is located in front of the visitor center, and a small short-term parking lot (four vehicles) is located next to the entrance station. The visitor center lot also has one space designated for disabled persons and one space designated for

park employee use. There is room available to the north to expand the visitor center parking lot, although the space is adequate for current visitor center parking demand.

Campground/Day Use Area

Each family campsite includes an unpaved parking spur for one vehicle. Campers are encouraged to park extra vehicles in their campsite rather than in the nearby day-use lot. . This parking overflow situation in the campsites affects the camping experience.

A gravel parking lot for picnickers and day-use hikers is located north of the picnic areas and family campground, across Adobe Canyon Road. The day-use parking lot can accommodate up to 34 cars and is filled most weekends from late spring to early fall.

Equestrian Center/Service Area

The gravel equestrian center/service area parking lot is the only area within the park that is large enough to allow a truck with a horse trailer to turn around. The lot can accommodate up to 33 cars; however, typically 6 horse trailers park in this area during the day, allowing space for only 15 to 18 additional cars. Rangers often patrol the area to make sure that day-use visitors, looking for limited parking spots, do not park in this area and block the trailer turn-around. This lot can be used to its full capacity as overflow parking for the observatory during night viewings.

Observatory/Group Camp Area

A 25-space dirt/gravel parking lot is shared by both the group camp and observatory. The parking lot is often too small for the number of visitors to the observatory during night viewing, and the service area/horse barn and day-use parking lots are used for overflow parking.

Other Areas within Sugarloaf Ridge State Park

Several small parking lots and pullouts are located on Adobe Canyon Road between the entrance sign near the park boundary and the entrance station in the campground area. A small gravel parking lot is located by the Goodspeed trailhead on the north side of Adobe Canyon Road. The parking lot can accommodate 10 cars and is used by both Sugarloaf Ridge State Park and Hood Mountain Regional Park visitors. Another small parking lot (10 cars) is located near the Ponygate trailhead. People often park in pullouts along the road to visit scenic overlooks and to hike to the waterfall. The spontaneous trails through the vegetation leading from the pullouts to the waterfall are causing erosion problems.

When all lots are full, visitors park illegally on the grass on the sides of Adobe Canyon Road. There have been as many as 20 cars along the side of the road near Goodspeed and Ponygate trailheads. During special events, such as nighttime viewings of meteor showers or comets, there have been on occasion 100 cars parked in the road between the entrance station and the observatory. These events occur rarely, but rangers are concerned with people parking illegally and blocking emergency access routes. On these rare occasions, volunteers and park rangers ask people to park down one side of the road to allow access for emergency vehicles. Rangers will sometimes turn visitors around and ask them to come back at a later time.

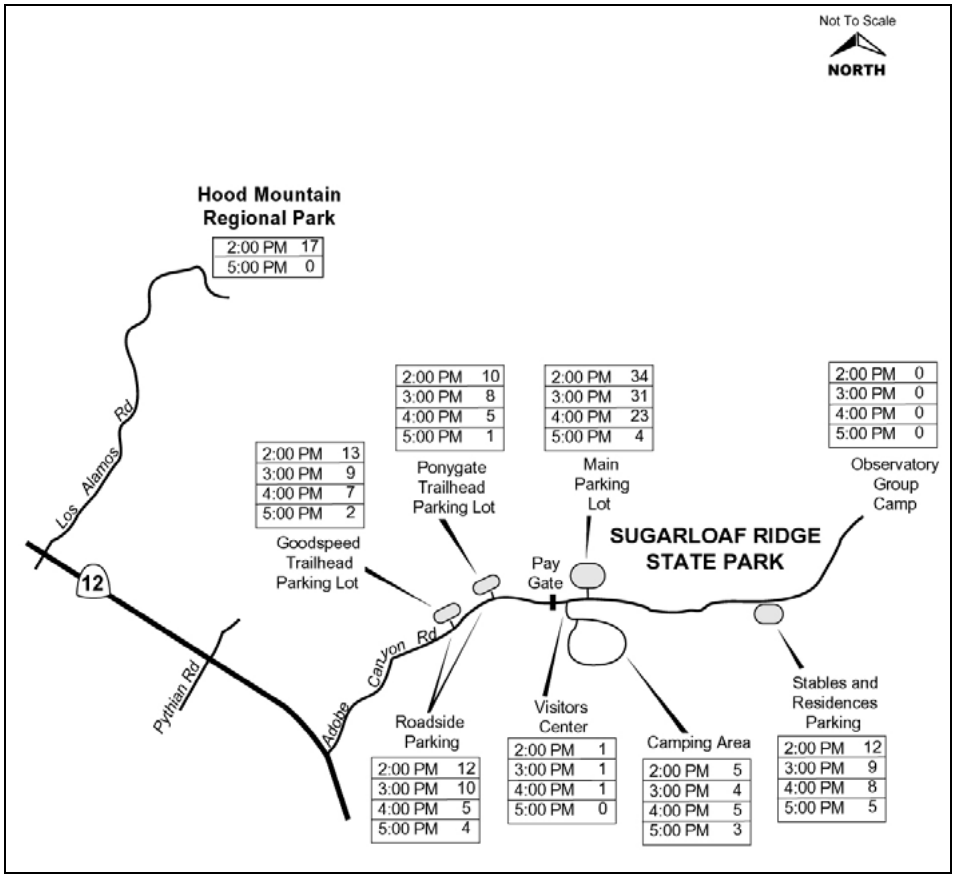
Los Alamos Road Entrance (Hood Mountain Regional Park)

A parking lot for Hood Mountain Regional Park is provided at the northern entrance on Los Alamos Road. The parking lot can accommodate 30 vehicles and is also shared by visitors accessing the Santa Rosa Creek Watershed Management Zone of Sugarloaf Ridge State Park.

Parking Demand

Crane Transportation Group conducted parking surveys on a November 2002 Sunday afternoon in both Sugarloaf Ridge State Park and Hood Mountain Regional Park. Results are presented in Figure 2-5 and Table 2-8. At Sugarloaf Ridge State Park, almost all the free trailhead parking outside the pay station gate was occupied in the middle of the afternoon, while more than half the available day-use parking was occupied within the park (east of the pay station). Only 10% of the campground spaces were used. At Hood Mountain Regional Park, 17 out of 30 parking spaces were occupied at 2:00 p.m., with all spaces empty by 5:00 p.m.

Figure 2-5: Sunday P.M. Peak Period Parking Demand November 17, 2002 (2:00-5:00 P.M.)



Source: Crane Transportation Group, 2002.

Table 2-8: Sunday Afternoon Parking Demand at Sugarloaf Ridge State Park

LOT ASSUMED DAY-USE OCCUPANCY	CAPA CITY	OVER FLOW	2:00 P.M.		3:00 P.M.		4:00 P.M.		5:00 P.M.	
			JUNE 100%	NOV.	JUNE 100%	NOV.	JUNE 80%	NOV.	JUNE 60%	NOV.
ADOBE CANYON										
Visitor Center/Entrance Station	9	0	9	1	9	1	7	1	5	0
Campground/Day-Use Area										
Family Campground [a]	100	25	43	5	43	4	43	5	43	3
Day-Use Lot	34	0	34	34	34	31	27	23	20	4
Service Area/Horse Barn	32[b]	0	18	12	18	9	14	8	11	5
Observatory/Group Camp	25	0	25	0	25	0	20	0	15	0
Goodspeed Trailhead	10	8 [c]	18	13	18	9	14	7	11	2
Waterfall Shoulder Pullouts	10	2 [c]	12	12	12	10	10	5	7	4
Ponygate Trailhead	10	0	10	10	10	8	8	5	6	1
Adobe Canyon Road Overflow	NA	20 [c]	20	0	20	0	16	0	12	0
Subtotal (Parking accessed by Adobe Canyon Road)			*189*	*87*	*189*	*72*	*159*	*54*	*130*	*19*
SANTA ROSA CREEK WATERSHED MANAGEMENT ZONE / HOOD MOUNTAIN REGIONAL PARK										
Los Alamos Road Entrance	30	10*	40	17	40	[d]	32	[d]	24	0
TOTAL			229	104	229	72	191	54	154	19

Sources: November 17, 2002 counts: Crane Transportation Group
June estimates: Sugarloaf Ridge State Park Head Ranger observations

Notes:

[a] The family campground has 50 campsites. Check-out time is noon, and most peak weekend campground users have left by the afternoon hours. Assumes 35% campground occupancy Sunday night.

[b] The service area/horse barn lot is not striped and could accommodate 5 horse trailers. Typically, horse trailers occupy the equivalent of 2.5 standard parking spaces per horse trailer. If 5 horse trailers are parked in the lot, then 20 standard parking spaces would be available.

[c] Illegal Parking

[d] Traffic count data were not available for 3:00 p.m. and 4:00 p.m. on November 17, 2002.

NA = Not applicable

Peak summertime Sunday afternoon parking use was projected by Department staff and is shown in Table 2-8. Ranger observations indicate that most parking lots and overflow parking are at full capacity early on Sunday afternoons in June, during good weather. The exceptions are the service area/horse barn parking lot and the family campground. As noted previously, horse trailers are not able to turn around in the horse barn parking lot if it is filled to capacity with cars. Rangers generally regulate parking in this area, limiting parking to a maximum of 18 cars, so that the trailers are able to turn around.

The estimated average occupancy of the family campground on peak summer Sunday nights is 35%, based on State Parks Form DPR 449 visitation use patterns (occupancy rates range from 20% to 60% on Monday following peak weekends). It is not known how many visitors are new to the campground on Sunday and how many are remaining from the weekend. The family campground check-out time is noon, so many campers leave the park between 11:00 a.m. and 1:00 p.m. A few campers remain for additional day-use activities and are required to park in day-use parking areas and exit the park with other day users.

Peak summer egress from the park occurs in stages. Day use in the summertime is fairly consistent in the early afternoon, but by 4:00 p.m. users are beginning to exit the park. By

4:00 p.m. on Sunday afternoon it is estimated that 20% of the day-use visitors have left the park, and by 5:00 p.m. it is estimated that 40% of the day-use visitors have left.

Air Quality

Air Pollution Climatology

Sugarloaf Ridge State Park is located at the northern end of the Sonoma Valley. The Sonoma Valley is a long, narrow valley running north-south between Sonoma Mountain on the west and the taller Mayacamas Ridge to the east. Because the valley is sheltered from direct sea breezes, winds are lighter than in most parts of the San Francisco Bay Area. Winds tend to be from the south during the day and from the north during the night.

The air pollution potential of the Sonoma Valley is high. Prevailing winds can transport locally- and regionally-generated pollutants northward into the narrow valley, which often traps and concentrates the pollutants under stable conditions. The local upslope (southerly) and downslope (northerly) flows set up by the surrounding mountains may also recirculate pollutants.

Ambient Air Quality Standards

The federal and California state ambient air quality standards are summarized in Table 2-9 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both standards attempt to

Table 2-9: Federal and State Ambient Air Quality Standards

POLLUTANT	AVERAGING TIME	FEDERAL PRIMARYSTANDARD	STATE STANDARD
Ozone	1-Hour 8-Hour	0.12 ppm 0.08 ppm	0.09 ppm NA
Carbon Monoxide	8-Hour 1-Hour	9.0 ppm 35.0 ppm	9.0 ppm 20.0 ppm
Nitrogen Dioxide	Annual 1-Hour	0.05 ppm NA	NA 0.25 ppm
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 ppm 0.14 ppm NA	NA 0.05 ppm 0.5 ppm
PM_{10}	Annual 24-Hour	50 $\mu g/m^3$ 150 $\mu g/m^3$	30 $\mu g/m^3$ 50 $\mu g/m^3$
$PM_{2.5}$	Annual 24-Hour	15 $\mu g/m^3$ 65 $\mu g/m^3$	NA NA
Lead	30-Day Month	NA 1.5 $\mu g/m^3$	1.5 $\mu g/m^3$ NA+

Notes:
ppm = parts per Million
$\mu g/m^3$ = Micrograms per Cubic Meter
NA = Not applicable

avoid health-related effects. As a result, the federal and state standards differ in some cases, and in general the California standards are more stringent. This is particularly true for ozone and PM_{10} (particulate matter, 10 microns or greater in diameter).

Air Pollutants of Concern in Sonoma County

The federal and state ambient air quality standards cover a wide variety of pollutants. Only a few of these pollutants are problems in Sonoma County, either due to the strength of the emission or the climate of the region. The closest air monitoring site to the study area is located in Santa Rosa.

Table 2-10 summarizes violations of air quality standards in Santa Rosa for the five-year period 1997-2001. Ozone and particulate matter are the two air pollutants of greatest concern in Sonoma County.

Table 2-10: Air Quality Data Summary for Santa Rosa, 1997-2001

POLLUTANT	STANDARD	DAYS STANDARD EXCEEDED IN:				
		1997	1998	1999	2000	2001
Ozone	Federal 1-Hour	0	0	0	0	0
Ozone	State 1-Hour	0	0	1	0	0
Ozone	Federal 8-Hour	0	0	0	0	0
PM_{10}	Federal 24-Hour	0	0	0	0	0
PM_{10}	State 24-Hour	2	1	1	0	2
$PM_{2.5}$	Federal 24-Hour	- -	- -	0	0	1
Carbon Monoxide	State/Federal 8-Hour	0	0	0	0	0
Nitrogen Dioxide	State 1-Hour	0	0	0	0	0

Source: Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2002.

Ozone

Ground-level ozone, often referred to as smog, is not emitted directly, but is formed in the atmosphere through complex chemical reactions between nitrogen oxides (NOx) and reactive organic gases (ROG) in the presence of sunlight. The principal sources of NOx and ROG, often termed ozone precursors, are combustion processes (including automobiles) and evaporation of solvents, paints, and fuels. Motor vehicles are the single largest source of ozone precursor emissions in Sonoma County. Exposure to ozone can cause eye irritation, aggravate respiratory diseases, and damage lung tissue, as well as damage vegetation and reduce visibility.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter includes as wide range of solid or liquid particles, including smoke, dust, aerosols, and metallic oxides. There are many sources of particulate matter emissions,

including combustion, industrial processes, grading and construction, and motor vehicles. Of the particulate matter emissions associated with motor vehicle use, some are tailpipe and tire-wear emissions, but greater quantities are generated by resuspended road dust. Consequently, improvements in motor vehicle engines and fuels have not reduced particulate matter emissions as significantly as they have reduced emissions of other pollutants. Wood burning in fireplaces and stoves is a significant source of particulate matter, particularly during cold, stagnant wintertime episodes when levels are highest[4]. Health effects of particulate matter vary depending on a number of factors, including the type and size of the particle. Research has shown a correlation between high inhalable particulate matter (PM_{10}) concentrations and increased mortality rates. Elevated levels can also aggravate chronic respiratory illness such as bronchitis and asthma. Fine particulate matter ($PM_{2.5}$) is a concern because it can bypass the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs.

Sensitive Receptors and Pollution Sources

Sensitive receptors are facilities where sensitive receptor population groups (children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include residential areas, schools, retirement homes, convalescent homes, hospitals, and medical clinics. The closest sensitive receptors to the study area are residences along State Route 12 and Adobe Canyon Road.

Noise

The park and surrounding area is generally quiet, with noise sources in most areas of the park limited to park visitor's voices, aircraft, birds, insects, and leaves rustled by breezes. The steep hillsides in the park give it a remote feeling and shield it from the noise of surrounding areas, most notably automobile and truck traffic on State Route 12.

The ambient noise levels shown in Table 2-11 are similar to those usually found in quiet rural areas. For perspective, the noise levels of conversational speech are typically in the range of 55 dBA to 65 dBA, and the noise levels near busy roadways in Sonoma County often range from 60 dBA to 75 dBA or more.

An exception to the park's quiet condition occurs in the park's primary visitor-serving area in Adobe Canyon. Most park facilities are concentrated on the valley floor in Adobe Canyon, where the steep hillsides of the canyon form a bowl that reflects noise inside. As a result, noise carries easily from one activity area in the valley to another.

[4] Campsites at Sugarloaf Ridge State Park have a very low occupancy rate, <10% during the winter months, when stagnant wintertime conditions most typically occur.

Table 2-11: Ambient Noise Levels

SOUND STANDARD	LEVEL (IN DBA) EXCEEDED FOR SPECIFIED CUMULATIVE DURATION OUT OF ONE HOUR				
	30-60 MINUTES	15-30 MINUTES	5-15 MINUTES	1-5 MINUTES	0-1 MINUTE
Typical Ambient	39	41	43	45	48
Quiet Ambient	34	35	35	37	37

Source: Sound Solutions, Sonoma Inn EIR

This is particularly a problem at night when visitors occupy three different areas within the park: the family campground, the group camp, and the observatory. Visitors trying to sleep in the family campground are usually the most bothered by the noise. The campsites on the southern loop of the family campground abut a vertical cliff that reflects noise from the valley directly into the campsites. Rangers often receive complaints about noise from the group camp carrying over to the family campground. Larger groups typically have a harder time staying quiet and are likely to stay awake later than people in the family campground. A noise curfew for the park starts at 10 p.m., which, with ranger enforcement, is generally effective at controlling nighttime noise. However, because of the acoustics within the valley, even conversational tones can be heard at a distance. During special celestial events, the observatory may be open all night for viewings, with associated noise from the movement of cars, car doors opening and closing, and people's conversations.

During the day, noise from one person talking loudly within the valley may also reduce another's enjoyment of the outdoors and the natural setting. The sounds of birds and other wildlife may be disrupted by people's conversations.

2.2.4 VISITOR PROFILE

Visitor Origins

Visitor origins have not been officially tracked by the Department. However, ranger observations and knowledge of the local population provide a window into some visitors' origins. The easiest segment to track is the overnight campers, since they check in and pay the rangers upon entering. Campers typically travel farther than day users, with a large portion visiting from Sacramento and the Bay Area. Day users, on the other hand, are more typically Sonoma County residents, visiting the park to go hiking from nearby Sonoma and Santa Rosa. More demographic information is provided in subsection 2.1.3.

Visitor Activities

Trail Use

Day hikers are the primary trail users in Sugarloaf Ridge State Park. The trails are more remote than those in nearby Annadel State Park; the terrain is more difficult with steeper slopes, and there are few developed facilities in the backcountry areas. This adversity may be daunting to some, although the remote quality of the park appeals to many visitors interested in more wildland-type experiences, with rugged scenery and backcountry hiking.

In the past, the park's remoteness may have limited the number of visitors to Sugarloaf Ridge State Park. According to ranger observations, an estimated 30% of the visitors go for extended hikes in the backcountry areas of the park. Roughly half of Sugarloaf Ridge State Park's trails are open to shared use, although only the heartiest of bikers are attracted to the rugged terrain. Trails at Hood Mountain Regional Park have not received heavy use by equestrians or mountain bikers, but use may increase with better connections to the trails at Sugarloaf Ridge State Park.

The horse concessionaire at Sugarloaf Ridge State Park is a major draw for equestrian recreation. Those using the horse concession facilities do not typically bring their own horses, though parking for horse trailers is in the area. The parking lot has space for six day-use horse trailers, and most trails are open for horse riding, although some are closed during wet weather (typically winter months) to protect from erosion.

Goodspeed Trail is one of the major trails that serve both Sugarloaf Ridge State Park and Hood Mountain Regional Park and is subject to realignment / reroute as a resuld of a landslide in the winter of 2003. The Goodspeed trailhead is located just inside the Adobe Canyon gate. A little further up Adobe Canyon Road is the Pony Gate trailhead. For a complete listing of trails within Sugarloaf Ridge State Park, refer to Section 2.2.3, Existing Facilities, above.

Access to the Santa Rosa Creek Watershed Management Zone and Hood Mountain Regional Park northern entrance are via Los Alamos Road, a long, winding ascent up to the ridge. The trails tend to be used by organized groups such as Audubon, Sierra Club, Santa Rosa Junior College, and the Oakmont Hikers, particularly since the trails are old ranch roads that easily accommodate group hikes. These hikes typically draw 8 to 30 people per hike. The parking area is only open four days a week, Friday through Monday. The gate to both parks is closed mid-week, eliminating access from the Los Alamos parking area. On most weekends, 8 to 15 cars are parked at the 30-car parking lot, with roughly half of the visitors going to Sugarloaf Ridge State Park and the other half to Hood Mountain Regional Park. On Mondays and Fridays, the numbers drop to between one and five cars in the lots. According to ranger observations, typical car occupancy averages about three people per car.

Camping

Sugarloaf Ridge State Park is one of only a few public camping areas in the region. The nearest camping areas are Spring Lake Park, approximately six miles away, immediately adjacent to the city of Santa Rosa; Liberty Glenn campgrounds at Lake Sonoma, approximately 40 miles to the northwest; and Armstrong Woods near the coast along the Russian River. Overnight use at Sugarloaf Ridge State Park is popular, particularly from May to October, when the campground's 50 sites are often full. Camping visits are limited to a one-week duration and a maximum of 30 days per year (required 48-hour break between week-long stays). Eight people are allowed in each campsite and, although there is room for two cars, one is preferred. In some cases visitors are asked to leave additional cars in the overflow parkingt lot. Camping with mobile homes and recreational vehicles is allowed, though no service hookups are available. Primitive backcountry camping was available on

weekends in Hood Mountain Regional Park at Azalea Creek from 1993 to 1995, and SCRP is considering reopening this area. Equestrian camping is also available at Sugarloaf Ridge State Park's group camp, although the corral can accommodate only three to four horses at a time and must not conflict with observatory use.

Astronomy

The Robert Ferguson Observatory prebooks the Group Camp for special events approximately 50% of days and weekends during spring, summer, and fall seasons (based on observatory reservations at the group campsite; see below for definitions of season times). The observatory also hosts classes through the local junior college, docent classes, volunteer training, meetings, and public viewing. A visiting group typically occupies the group camp when solar viewing is offered at the observatory (from noon to 4:00 p.m.). Summer evening viewing takes place from sundown until 11:00 p.m. or midnight, although on good nights people may stay all night.

Visitor Attendance

According to ranger observations, visitation to Sugarloaf Ridge State Park has been increasing steadily for the past decade. The park used to be crowded only on holiday weekends; now overflow occurs every weekend during the peak season and often during the shoulder seasons. Quantification of the observed increase in visitation is difficult since the numbers are often grouped together into monthly and annual reports. The most important visitation reports are the daily counts that are recorded on State Parks Form 449. Review of these forms yielded three numbers collected daily:

- Paid Day Use – Parking fee paid to the park staff or voluntarily paid to iron ranger.
- Free Day Use – Number derived from optical car counter and ranger observations.
- Paid Overnight Use – Actual number of paying campers.

Of the three figures, the paid day use and paid overnight use are the most reliable, as they are based on revenue generated for Sugarloaf Ridge State Park. The free day-use number, typically the largest number, is less reliable. Often the optical car counter malfunctions, and visitor numbers are based on a multiple of the car count. In short, the visitation numbers need to be scrutinized closely to obtain reliable data. The official estimated annual visitation numbers for 1995 to the present, and monthly figures for fiscal year 2001/2002 are provided below in Table 2-12.

Table 2-12 shows that visitor attendance increased from 1995 to 1997, decreased from 1997 to 1999, and then began increasing again from 1999 to 2002. Estimated free day-use visitation increased significantly (roughly 50%) in 2000/20001 and 2001/2002 from the previous years. By statewide policy, day-use fees were not collected during the 2000/2001

and 2001/2002 fiscal years when the entrance station was not staffed, resulting in an increase in visitor day use.

Another method of estimating daily visitor attendance is through parking capacity. Table 2-13 shows an estimate of maximum peak-day visitation based on parking capacity within the park. The estimates are based on daytime use in peak season during good weather, when the park is expected to attract the most visitors.

Table 2-12: Sugarloaf Ridge State Park Collected Visitation Numbers 1995-2002 by Year

FISCAL YEAR	PAID DAY USE	FREE DAY USE	OVERNIGHT	TOTAL ATTENDANCE
1995/1996	26,488	37,763	19,019	83,270
1996/1997	29,616	36,037	18,684	84,337
1997/1998	30,525	31,593	20,106	82,224
1998/1999	29,608	26,839	16,796	73,244
1999/2000	30,278	28,602	19,090	77,970
2000/2001	22,919	52,857[a]	19,719	95,496
2001/2002	21,048	101,857[a]	21,038	143,943

MONTH	PAID DAY USE	FREE DAY USE	OVERNIGHT	TOTAL
July 2001	2,257	9,596	3,056	14,909
August 2001	1,782	1,271	3,097	6,150
September 2001	1,874	7,932	2,814	12,620
October 2001	1,145	7,671	2,205	11,021
November 2001	991	8,598	807	10,396
December 2001	702	5,804	253	6,759
January 2002	1,509	6,052	449	8,010
February 2002	2,190	5,573	534	8,297
March 2002	2,006	6,849	1,134	9,989
April 2002	2,066	17,329	1,776	21,171
May 2002	2,236	12,547	2,486	17,269
June 2002	2,290	12,635	2,427	17,352
			Total	143,943

Note:

[a] By statewide policy, day-use fees were not collected during the 2000/2001 and 2001/2002 fiscal years when the entrance station was not staffed.

Source: CDPR, 2002.

The maximum peak-day visitation estimates in Table 2-13 employ the same conversion factors used by the rangers at Sugarloaf Ridge State Park to determine the number of visitors per vehicle (vehicle occupancy) in State Form DPR 449. Specifically, an average of 2.7 hikers and 3.2 campers arrive in any one car.

Table 2-13 also takes into account visitors that arrive to the park by bicycle or on foot that would otherwise not be accounted for in the estimates based on parking capacity. Rangers

estimate that the number of visitors arriving by bicycle or on foot is approximately 5% of the number of visitors arriving by vehicle per day.

Table 2-13: Parking Capacity and Maximum Peak-Day Visitation (2002)

	EXISTING PARKING SPACES	MAXIMUM VISITORS AT ONE TIME [A]	TYPICAL DURATION OF VISIT [B]	TYPICAL PARKING TURNOVER PER DAY	MAX VISITORS PER DAY [C]
Adobe Canyon					
Visitor Center/Entrance Station					
Short-term parking	9	0	15 min	10	-
Day use parking	0	0	4 hr	2	0
Campground/Day Use Area					
Day Use Lot	34	92	4 hr	2	184
Family Campsites	100	314	all day	1	314
Family Campsite Overflow	25	80	all day	1	80
Service Area/Horse Barn					
Parking (expansion into the former service area)	20	54	3 hr	3	162
Parking for the new Group Camp [d]	0	0	all day	1	0
Observatory Area (no change)	25	67	4 hr	2	134
Adobe Canyon Road					
Trailhead parking	20	54	2-3 hr	3	162
Pull-outs	10	27	1.5 hr	5	135
Illegal overflow (no change)	30	81	3 hr	3	243
Subtotal for Adobe Canyon:	*273*	*769*			*1414*
Broader Areas of Sugarloaf Ridge State Park					
Santa Rosa Creek Management Zone (Los Alamos entrance at Hood Mountain Regional Park)					
Upper & Lower Parking Lots	30	81	4 hr	2	162
Illegal overflow parking	10	27	4 hr	2	54
Nunns Canyon Management Zone	0	0	4 hr	2	0
Bear Creek Management Zone	0	0	--	--	0
Horse Trailer Parking					
Adobe Canyon (Service Area/Horse Barn)	5				
Nunns Canyon (Quarry)	0				
Total Horse Trailer Parking at Sugarloaf Ridge SP	*5*				
Standard Parking Space Equivalent (2.5)	12	32	3 hr	3	96
SUBTOTAL: VISITORS ARRIVING BY VEHICLE					
Subtotal (based on parking capacity only)		*909*			*1,726*
VISITORS ARRIVING BY BICYCLE OR ON FOOT (5% of Visitors arriving by vehicle per day)					
Bicyclists (3.75%)		34			65
Pedestrians (1.25%)		11			21
TOTAL		954			1,812

Notes: a Parking Spaces x Car Occupancy (2.7 hikers, 3.2 campers/car) b From Ranger Observations
c Parking Capacity x Occupancy x Turnover d Large Group Camp = 50 visitors
NA = Not applicable

Because Sugarloaf Ridge State Park includes both overnight campgrounds and the observatory, the park also attracts many visitors at night. Generally nighttime visitors to the observatory park in the observatory/group camp lot and overflow into the day-use lot and equestrian center lot, which are not typically used at night. However, during special celestial events, the observatory can draw visitors in excess of the overflow parking capacity. During these unique celestial events, visitor turn-over during the night can be high, and visitation numbers to the park may even exceed the figures in Table 2-13, which do not include nighttime visitors to the observatory.

Estimates for visitor use at Hood Mountain Regional Park are also difficult to ascertain, as the park has been open only intermittently since the 1970s. Annual visitation was measured at roughly 8,000 people in 1977/1978, the last time the park was open year-round until the year 2002. Recreation trends have changed dramatically since that time. According to SCRP visitation records, approximately 29,000 visitors have accessed either Hood Mountain Regional Park or Sugarloaf Ridge State Park from the joint-use parking area at the end of Los Alamos Road during the period of January 2002 through December 2002. This represents a doubling of visitation to the park as a result of opening Hood Mountain during the summer months of 2002. In addition, many people access Hood Mountain Regional Park via the Goodspeed trailhead in Sugarloaf Ridge State Park, where they are not counted by the regional park system. Prior to 2002, Hood Mountain Regional Park visitation had dropped due to such factors as seasonal closures, weekday closures, road disrepair, etc. The park is now open regularly Friday through Monday year-round, and combined with increased access into Sugarloaf Ridge State Park, the trailhead use from the Los Alamos parking area is increasing.

Seasonal Use Fluctuations

State-collected visitation data for 2001/2002 show Sugarloaf Ridge State Park's highest use occurred in April through July and September through October, with April the highest single month (over 21,000 visitors in 2002, mostly day users). There is a noticeable drop-off in day use during August, probably due to high temperatures. Fluctuations in visitation are primarily driven by weather and special events, such as astronomical observations or spring wildflower blooms. Past closures of Adobe Canyon Road due to fallen trees and limbs from storms, snow, and occasional landslides from the steep cliffs along the roadway have effectively closed the park until the road could be repaired and access restored.

The *peak season* and *shoulder season* vary for day use and overnight use at Sugarloaf Ridge State Park. Day-use visitation is at peak season in the spring and fall, with the shoulder season occurring during the summer and winter. Because of the relatively mild climate, there is constant day use year-round, with no off-season. During the peak season, there may be as many as 20,000 day-use visitors per month. Day-use visitation is highly influenced by weather, and thus visitation slows in the heat of the summer and during the winter rainy season.

Peak season for overnight use is in the summer (mid-June through mid-September) when there are typically 6 to 12 cars parked in the day-use lot as overflow from the camping area on Saturday nights, in addition to the maximum 124 cars in the family campground. During

this time, there may be as many as 3,000 overnight visitors per month. Shoulder season for overnight use is in the spring and early fall (mid-March through mid-June and mid-September through October), when overflow from campers still occurs, but only on holidays and sunny weekends.

A 1993/1994 visitor survey conducted at Hood Mountain Regional Park indicates that spring is the peak season within visitors coming to enjoy the wildflowers, flowing water, and mild temperatures. Hood Mountain Regional Park, as previously mentioned, has had many seasonal closures, particularly amid concern about high fire danger in the late summer, and is not usually open during the week.

Sugarloaf Ridge State Park operates beyond the carrying capacity of its facilities from May through October on weekends. The park also operates in excess of its 258-space parking capacity on a typical peak-season weekend. Approximately one-third of these cars (124) are in the campground. At these times, the group camp is often opened for day-use parking, as long as there are no observatory activities scheduled at the same time.

Volunteer Activities/Park Support

Sugarloaf Ridge State Park is fortunate to have a number of volunteer organizations devoted to interpretation within the park.

The *Valley of the Moon Natural History Association* trains and coordinates volunteers to lead guided walks and staff the visitor center. Volunteers repair trails and patrol the parks on bicycles and horseback. A person may volunteer as an individual or as part of a group on short-term projects of a day or less, or on a long-term project in specialized programs. Docents undergo a five-week training session and are expected to volunteer at least four hours a month in the park. The association also sells books, pamphlets, maps and other educational aids.

The *Valley of the Moon Observatory Association* is responsible for the construction, maintenance, and utilization of the Robert Ferguson Observatory. It functions as a nonprofit organization under the auspices of the Department. Volunteers host regular solar and night viewings at the observatory, and docents are available to give lectures and answer questions. As described previously, the Valley of the Moon Observatory Association created PlanetWalk, a scale model of the solar system designed to fit within the boundaries of the park.

Other local nonprofit and volunteer organizations conduct guided walks and hikes within Sugarloaf Ridge State Park, including *Acorn Soupe, LandPaths,* and the *Sierra Club*.

In addition to the nonprofit volunteer organizations, *campground hosts* play a vital role in the daily operations of the park and the visitor's experience. Their volunteer duties often include assisting visitors, collecting fees, performing light janitorial duties, conducting interpretive programs, and encouraging compliance with park rules and regulations (although they do not perform actual law enforcement duties). Hosts also perform a

multitude of other duties to help the park staff. Most state parks require a minimum commitment of three months, with a maximum stay of six months per park.

Projected Future Use

Patterns and Levels of Recreational Demand

A statewide survey of Californians' opinions and attitudes about outdoor recreation found that the highest unmet demand and greatest public support exists for nine particular outdoor recreational activities: walking, trail hiking, camping in developed sites, camping in primitive sites, general nature study, use of open grass areas, picnicking in developed sites, visiting museums/historic sites, and visiting zoos and arboretums (CDPR 1998). Given these priorities, as well as the demographic data provided above, it is likely that recreation demands at Sugarloaf Ridge State Park and associated areas will increase, both for undeveloped natural areas that accommodate hiking and backcountry camping and for more developed facilities for picnicking and camping.

A survey conducted for the Sonoma County Outdoor Recreation Plan found that Sonoma County residents agree in their desire for more park and recreation facilities. Highest priority was given to "passive" recreation: open space, hiking, trails, nature centers, and regional trails. Generally, the residents want a balance of passive and active recreation, but the predominant preference is for passive developed parks; Sugarloaf Ridge State Park falls in this category (County of Sonoma 2000).

As the individual parcels of Sugarloaf Ridge State Park and Hood Mountain Regional Park are managed as a single unit, recreation use and demand is likely to change. In particular, the combined parcels may offer a greater opportunity for wildland-type hiking and possibly for backpacking. Only two other areas in Sonoma County currently support backpacking at Austin Creek State Park and Lake Sonoma (although at the latter, designated campsites tend to be dominated by motorized boat users). The linkages of trails to form longer loops may attract more hikers and/or equestrians interested in longer trips. As a result, visitation at Hood Mountain Regional Park may increase where equestrian and mountain bike users have had limited recreation opportunities in the past due to the lack of longer loop trails and/or equestrian camping facilities.

Public Concerns and Comments

The primary method for the Department to receive information about public concerns and comments at Sugarloaf Ridge State Park is through written comments and visitor conversations with staff conducted on site during the visit to the park. Visitor comments collected on site are then discussed in regular staff meetings.

A visitor survey entitled "How Are We Doing" is available at the visitor center for those who seek to provide written comments. The survey is not distributed systematically to visitors as they enter the park. Rangers noted that usually visitors fill out the survey only when they have a complaint. Completed surveys are returned to Department headquarters for incorporation into a statewide database. Survey results from the years 2000 and 2001 are available for Sugarloaf Ridge State Park. Thirty-one respondents are

included in the survey results. Some of the comments that were repeated and are applicable to the general planning process are listed below:

- Resource Protection: The park's excellent cultural and natural resources and beautiful scenery should be protected.
- Public Safety: People generally felt safe in the park, with the exception of dangerous pests in the camping and day-use areas such as yellow jackets and snakes.
- Facilities: Several survey comments requested larger bathrooms with sinks and showers.
- Education/Interpretation: Some visitors thought that the educational resources on site were wonderful, particularly the observatory and campfire presentations. Others stated they would like more information sheets and books about the natural resources in the area.
- Recreation: Visitors noted that the trails were in good condition and the rangers were helpful. One commentor noted that they would be willing to pay higher fees to help maintain the park resources.
- Improvements/Suggestions: Visitor comments ranged from controlling the bees and yellow jackets to requesting quiet hours be enforced. Commentors noted that the multi-use trails do not all connect to complete a loop, forcing bicyclists to turn around or ride on a trail in which bicycles are prohibited in order to finish the loop.

2.3 ISSUES AND ANALYSIS

This section summarizes key existing conditions issues identified for Sugarloaf Ridge State Park to be addressed by the goals and guidelines of the General Plan.

2.3.1 BROAD PLANNING ISSUES

Key Issues:

- Challenges of facilities planning with changing park boundaries
- Changing demographics in user populations
- Managing the quality of the recreation experience with increasing use
- Limited visitor-use data

Challenges of Facilities Planning with Changing Park Boundaries

The relatively recent addition of new lands and the potential for more acquisitions in the future create an evolving context for park planning. This is particularly an issue for future facilities siting and expansion. New acquisitions provide opportunities for constructing new

facilities and relocating existing park facilities to the new properties. However, this opportunity results in a new set of issues for the District, including changing the circulation and use patterns in the park and potential natural and cultural impacts related to construction of the new facilities. In addition, there is the dilemma of making facility siting and expansion decisions within an evolving context, with the thought that there might be a "better" location for a particular facility on property that has yet to be acquired.

The SCAPOSD and other land trusts are actively acquiring important lands from willing sellers in the Mayacamas Ridge Mountain Range. Although in the past properties have been transferred to the Department at no cost, park staffing and financial resources are necessary to fully incorporate the new lands into the park. The Department will evaluate future acquisition properties are of statewide significance and fit into the acquisition plan.

Changing Demographics in User Populations

The changing demographics of the region and state and the ultimate pool of potential future visitors to the park will influence future recreational demand at Sugarloaf Ridge State Park. The District will need to respond to these recreational trends through appropriate new facilities and recreational opportunities, while balancing the need to protect sensitive natural and cultural resources within the park.

Demographic trends suggest that regional growth is likely to contribute to higher visitation at Sugarloaf Ridge State Park generally and that the demand for outdoor / wildlands recreational use is likely to increase as accessible acreage increases at Sugarloaf Ridge State Park.

The substantial increase in the Hispanic population in the state and region suggests the mix of user groups, and their subsequent facility needs at the park, may be changing. The demand for developed recreation sites, particularly those with picnic tables, barbeque grills, parking lots, etc., may increase due to this shift in ethnicity patterns.

The aging populace suggests a demand for volunteer opportunities and improved interpretation and classroom activities, such as those currently available at the observatory and the visitor center. Level or more easily accessible trails and ADA-compliant camping opportunities may also help to satisfy this changing demographic pattern.

Managing the Quality of the Recreation Experience with Increasing Use

In responding to increased recreational demand in the park, the Department must also consider the potential effect new or expanded facilities or new recreational uses would have on visitor attendance, and in turn how an increased level of visitor use may affect the visitor experience and its potential effect on environmental resources.

Limited Visitor-Use Data

The visitor-use data for Sugarloaf Ridge State Park was collected using various methods and is limited in scope. Information such as where visitors live, the purpose for visiting the park,

or what facilities were used has not been collected regularly or systematically; therefore, for the purposes of the plan, state park ranger observations were used to supplement the available data.

2.3.2 CHARACTERISTICS OF THE PARK

Expanding Park Boundaries and Management

Key Issues:

- Relationship to Hood Mountain Regional Park
- Relationship between state and regional parks in the area
- The desire to distribute increased visitor use over the broader areas of the park
- Integration of new (future) properties into the park
- Connecting the Santa Rosa Creek Watershed Management Zone entrance with the rest of Sugarloaf Ridge State Park

Relationship to Hood Mountain Regional Park

Hood Mountain Regional Park, operated by SCRP, boders Sugarloaf Ridge State Park to the west. The two parks are closely related, sharing a few trails and the operational responsibility for opening and closing gates. Goodspeed Trail provides the only official access point to the southern portion of Hood Mountain Regional Park, although that may change soon as public access is opened through the recently acquired Johnson property.

The only public access to the Santa Rosa Creek Watershed Management Zone is through Hood Mountain Regional Park, so access to the northern portion of Sugarloaf Ridge State Park is subject to SCRP park closure policies. From 1986 to 2001, Hood Mountain Regional Park was open to the public on an intermittent basis, primarily on weekends in the spring and fall when the fire risk is lower. With the acquisition of the Santa Rosa Creek Watershed Management Zone, SCRP has opened the gates to Hood Mountain on a more regular basis.

Sugarloaf Ridge State Park and Hood Mountain Regional Park together could offer near wildland experiences for visitors. Demand for backcountry camping is expected to increase now that the trails in Hood Mountain Regional Park are open to the public more consistently and with the reinstatement of a backcountry campground in that park (Azalea Campground).

Relationship between state and regional parks in the area

There are several state and regional parks located within 10 miles of Sugarloaf Ridge State Park: Annadel State Park, Jack London State Historic Park, Bothe-Napa Valley State Park, Spring Lake Regional Park, and the adjacent Hood Mountain Regional Park. The idea of establishing a connection between the parks through greenways and bikeways has been suggested by a number of agencies and organizations in the region. Many of these parks

include trails designated as part of the Bay Area Ridge Trail, but many of the trail segments are currently isolated from one another. A direct trail/bike lane connection between Annadel and Sugarloaf Ridge State Park, via Lawndale Road and Hood Mountain, was suggested in the *Draft Sonoma County Outdoor Recreation Plan*. SCRP is pursuing a trail easement over the private property across State Route 12 from Lawndale Road, which could facilitate another trailhead into the south side of Hood Mountain Regional Park.

The pedestrian connections between the undeveloped wildland areas of the park could also serve as wildlife corridors. See the discussion of the importance of biocorridors in subsection 2.5.2.

Some of the Annadel day users may be encouraged to visit Sugarloaf Ridge State Park. Because of its proximity to Santa Rosa, Annadel is heavily used as a retreat from the city, and the trails are often crowded. With the recent acquisition and transfer of the Johnson property to SCRP, Pythian Road may become a primary connection from State Route 12 to Hood Mountain Regional Park, and possibly to Sugarloaf Ridge State Park. Day users at Annadel will need to be informed of the recreation opportunities available at Sugarloaf Ridge State Park.

The desire to distribute increased visitor use over the broader areas of the park

Most visitor-serving facilities are concentrated in Adobe Canyon, and most trails radiate out from the campground area. A few trails are located in the northern portion of the park near the Los Alamos Road entrance; however, these trails do not connect with those in the rest of the park. In addition, Los Alamos Road is long and winding, which deters some visitors from taking that route to the northern portion of the park. As such, most visitor use is concentrated in Adobe Canyon, and campsites are full on weekends from May to October. The demand for parking in Adobe Canyon currently exceeds capacity during these peak months.

The recent acquisition and transfer of the Johnson property to SCRP indicates that Pythian Road could become a third entrance into Hood Mountain Regional Park. Public access easements on Pythian Road could be extended through the inholding properties to provide another public access point to Sugarloaf Ridge State Park. In addition, with the transfer of a portion of the Beltane Ranch to the Department, Nunns Canyon Road will become a southern access road into Sugarloaf Ridge State Park.

The demand for recreational facilities in Sugarloaf Ridge State Park is expected to increase in the future due to several factors: a general increase in the population base; the District's desire to direct day users from Annadel to Sugarloaf Ridge; increased operating hours for Hood Mountain Regional Park; and the expanded park boundary, which will further attract visitors to the park. Any increase in visitor-serving facilities within the park will also attract more park users. The District will need to address the expected increase in demand for recreation facilities within the park, since the park is currently operating at capacity in terms of existing visitor facilities. In addition, the broader areas of the park are underutilized due to a lack of trails or needed connections between existing trails.

The Bear Creek Management Zone and the southern half of the Santa Rosa Creek Watershed Management Zone currently receive little use. Similarly, once the Beltane acquisition is finalized, additional trails will need to be constructed within the Nunns Canyon Management Zone and through the Thatcher property to provide access to that management area. These areas provide an opportunity to distribute visitor use to the broader areas of the park.

Integration of new (future) properties into the park

After many years with the same park boundaries, Sugarloaf Ridge State Park extended its boundaries in 1996 with the transfer of a 1,200-acre portion of the McCormick property from SCAPOSD to Department ownership (Santa Rosa Creek Watershed Management Zone). SCAPOSD is also currently finalizing the acquisition of a portion of the Beltane Ranch (Nunns Canyon Management Zone). The acquisition of new lands for inclusion in Sugarloaf Ridge State Park brings many benefits with respect to protection of important natural and cultural resources and potential sites for new facilities. It also presents new challenges for the Department.

The integration of new properties into the park requires immediate programs to make these areas available to the public, including installing park signs on the new property, updating park maps, and expanding ranger patrol areas. Longer term issues include creating trail linkages, evaluating natural and cultural resources and potential interpretive sites, and considering expansion or relocation of facilities onto the new property, among others. Park staffing and financial resources are necessary to implement these tasks.

Trail connections between the new acquisition areas and Adobe Canyon are critical to achieve the distribution of visitors to the broader areas of the park. The Department will need to provide access to the residential properties that also use the access roads to the park.

In addition, conservation easements are held on some properties acquired by SCAPOSD and transferred to Department ownership. Specific conditions transfer with the easement that affect the long-term management of the property and require that SCAPOSD be advised of management strategies.

Connecting the Los Alamos Road entrance with the rest of Sugarloaf Ridge State Park

Public access to the northern entrance of Sugarloaf Ridge State Park is limited by a number of factors, including the nature of Los Alamos Road itself. This long, narrow, and winding road discourages some people from taking that route to the park. The Los Alamos Road extension also passes through a narrow sliver of private property between Hood Mountain Regional Park and Sugarloaf Ridge State Park, which may restrict direct public vehicle access to the park on this roadway.

From the north, the only way for the public to access Sugarloaf Ridge State Park is to start at the northern entrance parking lot at Hood Mountain Regional Park, hike south on the Santa Rosa Creek Trail, and then cross Santa Rosa Creek into the park following the fire road. The Santa Rosa Creek Trail crossing is inaccessible during periods of high water.

Direct access from the south is also limited. The narrow portion of the park connecting the Santa Rosa Creek Watershed Management Zone with the Bear Creek Management Zone could not accommodate a trail link between the two areas due to the steep topography. The Department may consider working with owners of the surrounding lands to allow a trail connection between the two areas. Visitors can hike from the Goodspeed Trail through Hood Mountain Regional Park to the Santa Rosa Creek Trail, crossing to access the park's Santa Rosa Creek Watershed Management Zone from Adobe Canyon. Thus, access to the Santa Rosa Creek Watershed Management Zone depends on whether Hood Mountain Regional Park is open or closed. The lack of a direct connection from the visitor services in Adobe Canyon isolates the Santa Rosa Creek Watershed Management Zone from most park visitors.

2.3.3 CIRCULATION AND ACCESS

A number of physical and operational characteristics combine to make circulation and access a key issue for the park. The three access roads to Sugarloaf Ridge State Park are Adobe Canyon Road, Los Alamos Road, and Nunns Canyon Road. Each of these provide access to distinct areas of the park that are not connected to the other areas. In addition, Pythian Road may become a new access road to Hood Mountain Regional Park through the recently acquired Johnson property.

Key Issues:

- Landslides on access roads to Sugarloaf Ridge State Park have caused park closures in the past.
- Connections and upgrades are needed for emergency access.
- The low-water bridge limits vehicle access to the family campground.
- Visitors speeding on park roads at night present a safety concern.

Landslides on access roads to Sugarloaf Ridge State Park have caused park closures in the past

The narrow, winding access roads to Sugarloaf Ridge State Park are part of what makes it a wildland park. However, these characteristics also raise safety concerns, especially at night when visibility is reduced. RVs and trailers in particular have a difficult time climbing uphill on both Adobe Canyon and Los Alamos Roads. There are minimal shoulders and not much overhead clearance.

The narrow roads cut into the hillsides are susceptible to closure because of landslides. Landslides have caused road closures on Adobe Canyon Road in the past. Because most

visitor-serving facilities are accessed from Adobe Canyon Road, and there is no other direct access to that area by road or trail, the closure of Adobe Canyon Road effectively closes the park until the roadway can be repaired. The road is maintained by Sonoma County up to the park entrance sign.

Connections and upgrades are needed for emergency access

Fire roads provide emergency access and egress to the remote wildland areas of Sugarloaf Ridge State Park. Several gaps in emergency access circulation patterns are identified within the General Plan study area. The fire roads are often single-lane roads in fair condition, and the outer reaches of some of the dirt roads are in poor condition, with deep ruts that could restrict vehicle movement. Department staff knowledge of emergency access routes and road conditions was supplemented with GIS database information for roads and trails. The GIS database emergency access/egress information will need to be field-verified and updated with road conditions to provide an accurate assessment of the capability of emergency vehicles to pass on the emergency access routes. Improvements to the emergency access circulation systems in the park and surrounding area should be coordinated with improvements to internal trail connections between the different management areas of the park.

The low-water bridge limits vehicle access to the family campground

RVs and trailers longer than 24 feet are not able to cross the low-water bridge, and some have gotten stuck in the past trying to cross. During heavy rains and when creek levels are high, water makes the campground inaccessible by vehicle. Rangers must sometimes prevent people from trying to cross during high water.

Visitors speeding on park roads at night present a safety concern

Some visitors speed in the section of the road leading to the observatory and group camp once they are out of site of the rangers at the entrance station. Due to the minimal lighting, speeding vehicles present safety concerns for people camping or walking around in the dark at night.

2.3.4 PARKING

Parking demand during the peak season exceeds the available parking capacity in the park

The parking lots in Sugarloaf Ridge State Park are full most weekends from mid-March through the end of October. Only about 5% of users arrive to the park by walking or biking. The parking demand during the peak season currently exceeds the available parking capacity in the park. When all parking lots are full, visitors park illegally on the sides of Adobe Canyon Road, causing safety concerns and disturbing natural and cultural resources beside the roadway. People parking illegally on the side of the road may also block access for emergency vehicles. This is a particular problem during special celestial events, when large crowds are drawn to the observatory.

Any new or expanded recreational facilities in the park would further increase the parking demand, resulting in visitor frustration and increased illegal parking on the sides of roads. While the District hopes to attract day users from Annadel State Park, the lack of sufficient parking would tend to deter such users from visiting Sugarloaf Ridge State Park.

However, any increase in the number of parking spaces would likely result in an increase in the number of visitors to the park, because parking capacity does not meet current demand. An increase in visitor attendance may affect visitor experience and potentially affect natural and cultural resources.

2.3.5 TRAILS

Key issues:

- Trail connections between management zones
- The opportunity to develop a new trail connection near Bear Creek
- Erosion of steeper sections of trails result in increased stream sedimentation
- The need to develop trails to conform with ADA trail standards and respond to the increased number of people over 65 years old

Trail Connections between management zones

Most trails in Sugarloaf Ridge State Park radiate out from the existing campground area in upper Adobe Canyon. The trails in upper Adobe Canyon provide a variety of trail loops and levels of difficulty for park visitors. It is important to connect all the park management zones to the established trail network in upper Adobe Canyon.

The opportunity to develop a new trail connection near Bear Creek

An existing road, hand-built by the Hurd Family in the early 1900s, runs north-south to the west of Bear Creek in the western portion of Sugarloaf Ridge State Park. This road provides an opportunity to expand the trail network in the western portion of the park. The road stops north of the Goodspeed Trail. The potential for a connection with Goodspeed Trail needs to be evaluated.

The road continues outside park boundaries, through a private inholding, and then continues on park lands to the Red Barn at the end of the High Ridge Trail. Because the road passes through a private inholding, a trail easement may be needed to provide the connection between the eastern and western portions of Sugarloaf Ridge State Park. If a trail connection were established from the Goodspeed Trail to the Hurd Road, visitors could hike to the Red Barn without going over Bald Mountain.

Erosion of steeper sections of trails results in increased stream sedimentation

Many of the steeper sections of trails in the park have erosion problems, resulting in stream sedimentation. The District has initiated a program to reengineer trails to reduce water concentrations and the resulting siltation in the creeks. (A more detailed discussion of this issue is provided in subsection 2.5.2.

The need to develop trails to conform with ADA trail standards and respond to the increased number of people over 65 years old

Demographics suggest the demand for grades not to exceed 10%, more easily accessible trails, and development of additional interpretive displays will likely increase due to the aging population in Sonoma County and California in general.[5] Sugarloaf Ridge State Park has been identified as a Level 2 park in terms of ADA accessibility. As outlined in the Transition Plan for Accessibility in California State Parks (CDPR 2001), major activities offered at Level 2 parks are to be made accessible. Facilities that support the major activities and programs such as parking, routes and restrooms should also be made accessible.

2.4 ACCOMMODATING VISITORS

2.4.1 VISITOR EXPERIENCE

Key Issues:

- The camping experience in the group camp is diminished by its proximity to the observatory and visa versa.
- The family campground is noisy and crowded.
- Family campsites are inaccessible during wet weather.
- Increased demand for additional interpretive resources.
- Most of the facilities are not in keeping with the visual character of the natural setting.

The camping experience in the group camp is diminished by its proximity to the observatory and visa versa

Separating the large group camp from the observatory has been identified by park rangers as a key issue. Visitor use at the observatory is growing, and the concessionaire (the Valley of the Moon Observatory Association) wants to expand the observatory. Because the observatory is located in the valley, the surrounding mountains block the light from urban

[5] Some 'seniors' at the public meetings disagreed with this interpretation and stated that strenuous exercise is what keeps them young. It should be noted that ADA accessibility is not just for seniors.

areas. For this reason, it is likely that the observatory will remain in place, and the group camp will be relocated.

The camping experience in the group camp is diminished by its proximity to the observatory and other park facilities and visa versa. The observatory restricts the availability of the group camp for camping for more than half the year. When it is available for camping, the observatory, the gravel parking lot, and parked cars are in the immediate view of campers. The group camp is located in a minor hub of activity, with the observatory, equestrian center, and service area all close by. The group camp is not situated in an outstanding natural setting, although a nice grove of trees on one side shields the mobile home and maintenance building that would otherwise be visible to campers. The observatory is in a good location for shielding ambient light, and the setting for the group camp in the activity zone is not ideal.

Moving the group camp away from the observatory could provide group camping facilities year-round, and potentially accommodate outdoor environmental education classrooms near the group camp.

The family campground is noisy and crowded

The campsites in the family campground are very close together, and there is little vegetative understory to separate one campsite from another. The vertical cliff along the southern side of the campground reflects noise directly into the campsites. This is a problem at night when park visitors generate noise in three different areas: the family campground, the group camp, and the observatory. However, the acoustics are a natural condition of the canyon in which these facilities are located, and little could be done to eliminate the noise, short of removing all facilities from the valley.

Family campsites are inaccessible during wet weather

During the winter, the campsites along the southern edge are closed due to wet and boggy conditions, and the campground may become inaccessible by vehicle when creek levels are high.

Increased demand for interpretive resources

Demographic trends suggest that the park visitor of the future will be older and more educated, which would likely increase demand for interpretation and classroom activities. Several educational displays and programs are offered at Sugarloaf Ridge State Park; however, the opportunity exists to increase interpretive programs to meet growing demand. Many visitors leave the park without getting a complete picture of Sugarloaf Ridge State Park's prehistoric and historic past, nor of its natural and recreational resources. The visitor center, which houses many interpretive displays and brochures, is only open on the weekends for limited hours. The building is small and does not provide adequate space for educational classrooms.

Most of the facilities are not in keeping with the visual character of the natural setting

Many of the park buildings in Adobe Canyon were built as temporary facilities and appear as such. There is no consistent architectural style or use of building materials, and thus the buildings do not have the traditional appearance of park facilities. Portable restrooms, trash dumpsters, metal cargo containers for fire wood, and service equipment seem to be placed for the purpose of convenience and are not screened from view. In addition, the day-use parking lot sits high on a pad in the center of a meadow without landscaping to screen it from view. The parked cars in the day-use lot are the first thing visitors see upon leaving the entrance station. The unattractive service facilities that lack a consistent "park-like" architectural style stand out in the beautiful natural setting of Adobe Canyon.

2.4.2 EXISTING DEMAND FOR NEW OR EXPANDED FACILITIES AND SERVICES

Visitors and park staff have observed the need for a number of new or expanded facilities for the park to meet increased recreational demand.

Key Issues:

- Need for additional restroom facilities and showers in the family campground
- Existing demand for additional group campsites
- Need to expand the visitor center
- Concessionaire desire to expand the observatory

Need for additional restroom facilities and showers in the family campground

The existing restroom facilities in the family campground are limited and inadequate. None of the restroom have sinks for hand washing, and the only ADA accessible restrooms are temporary portable restrooms. Specific requests have been made for larger permanent restroom facilities with showers. All water and sewage treatment facilities for the park are contained on site. Further water and sewage capacity investigations may be necessary to determine whether existing capacity would be able to support showers.

Existing demand for additional group campsites

Sugarloaf Ridge State Park is one of only a few public camping areas in the region. Overnight use at the park is popular for groups, particularly from May to October. The large group camp would likely meet existing demand for such facilities, but it is available for less than half of the year due to the observatory rental of the site. Relocating the group camp away from the observatory would resolve this issue, making group camping available year-round in Sugarloaf Ridge State Park. Small groups often camp in the family campground, due to a lack of larger facilities. Rangers have indicated a need for some small group campsites to meet this demand.

Horseback riding is popular in Sonoma and Napa Counties, and the stables concessionaire at Sugarloaf Ridge State Park draws equestrians. The group camp currently provides one of the only equestrian camps in the region. The limited availability of the group camp due to conflicts with the observatory also limits equestrian camping in the park.

Need to expand the visitor center

The existing visitor center facility is located near Sonoma Creek, is undersized for small groups, and lacks educational classroom facilities. Rangers have also indicated a desire for a permanent restroom facility within the building. Septic tank and leachfield requirements may preclude the siting of a restroom near the visitor center due to its proximity to Sonoma Creek.

Concessionaire desire to expand the observatory

Visitor use at the observatory is growing, and the concessionaire wants to expand the observatory to include additional classrooms. The Department is in the process of securing a contract with the concessionaire to provide interpretive services for the park.

The observatory concessionaire has also requested permission to construct a permanent restroom within the building; however, the observatory is located too close to a Sonoma Creek tributary to allow for a septic tank leachfield to accommodate permanent restrooms within the building. An engineered leachfield or a compostable toilet may provide a solution.

2.5 RESOURCE PROTECTION AND MANAGEMENT ISSUES

2.5.1 CULTURAL RESOURCES

Key issues:

- Ongoing damage to cultural resources from natural occurrences and visitor use
- Identification of cultural resources in all areas of the park

Ongoing damage to cultural resources from natural occurrences and visitor use

Cultural resources within Sugarloaf Ridge State Park have been subjected to a number of impacts that have caused damage or destruction. Chiefly, erosion along Sonoma Creek and its tributaries has washed away site components, and apparently caused the total destruction of some sites. Other factors, such as wild pig rooting, foot and equestrian traffic, looting, and construction or maintenance of park facilities have caused cumulative damage to some sites. Ongoing damage has led the District to develop and implement an

archaeological evaluation program that has included many of the larger sites in the Sonoma Creek drainage.

Identification of cultural resources in all areas of the park

The Bear Creek Watershed Management Zone has not been extensively surveyed for cultural resources. Few facilities are located in this area and visitor use is minimal; however, visitorship may increase with the potential relocation of park facilities and trail extensions in and around this portion of the park. All new properties integrated into the park should be surveyed for cultural resources.

2.5.2 NATURAL RESOURCES

Key issues:

- Minimization of impacts to plant and wildlife resources from visitor use and the location of facilities
- Invasive non-native species are disrupting the ecological balance of the park
- Degraded water quality may affect spawning habitat for steelhead and chinook salmon and other aquatic habitat
- Incomplete inventory of plants and animals in the General Plan study area
- Continued elimination of biocorridors connecting with other wildlands could reduce biodiversity
- The desire to protect the dark nighttime sky

Minimization of impacts to plant and wildlife habitat from visitor use and the location of facilities

Some current uses and the location of existing facilities may be degrading plant and wildlife habitat in the park. For example, the Goodspeed trail is on a steep erosive slope, is in some cases poorly constructed, and cuts through areas of sensitive habitat. Where possible, existing impacts should be minimized through appropriate facility siting and design.

Invasive non-native species are disrupting the ecological balance of the park

Non-native plant species have resulted in the conversion of native habitats to a non-native vegetation type, causing a reduction of native plants and degradation of wildlife habitat. Yellow star-thistle, Harding grass, and medusa head are invasive weeds that continue to degrade grassland meadows in Sugarloaf Ridge State Park.

Wild pigs in the park compete with native wildlife species for food and disturb biological and cultural resources by turning over the ground while rooting for food. This action can leave the ground bare, resulting in increased erosion and sedimentation. Non-native

turkeys also disrupt the natural cycles by eating acorns, small reptiles, and amphibians. District resource ecologists have initiated various programs to combat invasive weeds, including introducing natural enemies and implementing burn programs.

Degraded water quality may affect spawning habitat for steelhead and chinook salmon and other aquatic habitat

Erosion is occurring along a portion of the headwaters of Sonoma Creek and may affect water quality. Steep slopes in the park increase the velocity of runoff into the creeks. The locations of some existing facilities close to Sonoma Creek also may be affecting water quality in the creek. Campsites in the family campground are located on the bank of Sonoma Creek, and people wading and playing in the creek exacerbate erosion and sedimentation problems. The horse barn is located about 50 feet from Sonoma Creek, resulting in potential impacts to water quality.

The District has undertaken several programs to reduce sedimentation and improve water quality in Sonoma and Santa Rosa Creeks. The District has been reengineering existing trails and roadways to reduce erosion; however, the process is initially expensive to implement, and only a few trails have been reconstructed since the program began three years ago. When complete, the trail rehabilitation should result in a substantial decrease in sedimentation into the creeks and also reduce ongoing maintenance costs. The District is coordinating with landowners surrounding the park and the Sonoma County Water Agency regarding general management and protection of the watershed.

Incomplete inventory of plants and animals in the General Plan study area

A number of different plant and animal lists have been compiled for various areas in the General Plan study area. A complete inventory of plants and animals in Sugarloaf Ridge State Park and Hood Mountain Regional Park would aid District resource ecologists in the management, protection, and enhancement of natural resources. The inventory should include surveys for special-status species for which suitable habitat is present in the park.

Continued elimination of biocorridors connecting with other wildlands could reduce biodiversity

The General Plan study area provides diverse biological habitat, including that for mountain lions, an indicator species of the overall health of the ecosystem. Sugarloaf Ridge State Park provides an important refuge of preserved habitat for wildlife in the Mayacamas Ridge Mountain Range. Continued elimination of biocorridors connecting with other wildlands, primarily due to encroaching residential development and vineyards around the park, could biologically isolate the park. The natural ranges of plant and animal species that depend on the park for habitat could be reduced, resulting in less biodiversity both inside and outside the park.

The desire to protect the dark nighttime sky

The dark nighttime sky is an important resource at Sugarloaf Ridge State Park for astronomical observation. The observatory is located in upper Adobe Canyon because the surrounding high peaks shield the ambient nighttime light from nearby Santa Rosa. Although the dark sky is important for celestial viewing at the observatory and is a contributing factor to the remote and natural setting of the park, the Department and the District do not have any policies or guidelines in place to protect this important resource.